

CAA JOURNAL

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Safeguards Against Stalls Urged in Report to CAA

Recommendation that the airplane should have stall resistance designed into it or be equipped adequately with mechanical stall warning devices is the conclusion reached with the completion of four separate studies of the stall made for the Civil Aeronautics Administration.

The fourth report, "Stall Recovery and Stall Warning Instrumentation in a Light Airplane," has been submitted to D. W. Rentzel, Administrator of Civil Aeronautics, by Dean R. Brimhall, Coordinator of Research for the CAA, with the recommendation that the findings be reflected in revision of CAA manuals and training publications.

Major conclusion reached in the fourth study is that the stall warning indicator not only will assist the pilot to avoid a stall, but it also can be used as a flying instrument to indicate proper stall-recovery practice and the best and safest angles of climb and glide.

The study was conducted by the National Research Council under contract with the CAA, and directed by Dr. Philip J. Rulon, professor of psychology at Harvard University, and K. W. Vaughn, his associate. Dr. Rulon, an experienced pilot himself, has been connected with all of the CAA stall studies.

Continual Practice Needed.—Previous studies have revealed that beginner and veteran pilots both are uncertain in their ability to detect the approach of the stall; that familiarity with one airplane in its stall behavior does not necessarily carry over to other types of planes; and that while a pilot can be trained to detect stall approach in one plane, and in several different maneuvers, it requires continual practice to keep up his competency to fly safely.

"We can train a man to memorize all the phone numbers he may want to call," Dr. Rulon said in discussing his latest study, "but it is far more sensible to print them in a phone book. It is immediately apparent that all pilots cannot retain the ability to recognize and avoid stalls in all the types of planes they may fly, and it is apparent also that while highly skilled pilots may 'get away with' stall hazards, there are many thousands of beginner pilots and those who fly occasionally who should have the benefit of either a stall-proof or stall-resistant airplane or stall warning."

"Through long and expensive training," Dr. Brimhall said, discussing the report, "a pilot might learn to judge his altitude fairly accurately. He might even

Stall Warning Instrumentation in a Light Air-

able to judge air speed with a lot of training, but no one says it would be sensible to depend on training when simple instruments like the altimeter and air speed indicator are available.

"Now, CAA contract researchers have found that recognition of the approach of a stall is not learned by the average pilot. They come to the sensible conclusion that a stall-warning instrument is just as necessary for safety as the air speed indicator and altimeter."

Two Answers Sought.—In the latest investigation, answers to two questions were sought: "What should the pilot do when the airplane stalls?" and "Can a stall-warning signal be used effectively in indicating optimum angles of climb and glide?" The tests were conducted in a Piper J-3 airplane equipped with a stall-warning device, an angle of attack indicator, and a radio altimeter. Tests were run by two com-

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Civil Aviation Inventory Urged To Aid Defense

A physical inventory of civil aviation resources which can be used in a period of partial mobilization and also in a period of total mobilization was proposed by the Aviation Development Advisory Committee of the Civil Aeronautics Administration at a meeting July 21 in Washington, D. C.

In a resolution presented to D. W. Rentzel, Administrator of Civil Aeronautics, the committee pointed out its deep concern over the "ultimate utilization of all segments of civil aviation resources by the military and by civilian defense agencies." The problem was discussed briefly with President Truman when the committee visited him.

In its resolution, the committee told Mr. Rentzel:

"The committee believes that all United States civil aviation interests should be told as soon as possible what they can expect in the way of utilization and/or restrictive measures which might be imposed."

"We offer to you our services in this regard and are willing to work up a suggested program looking toward complete use of all civilian aviation resources after studies and deliberations based on availability of facilities."

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Fliers Given Pointers on Better Use of Radio

"We don't care how you say it. Just talk to us, please."

D. W. Rentzel, Administrator of Civil Aeronautics, disturbed at reports that private fliers hesitate to use their radios in dealing with CAA airways employees, has asked all pilots to feel free to talk to his communicators and traffic controllers at any time, and in any kind of English.

"It's strange," said Mr. Rentzel, himself a flier with several hundred hours' experience, "but we find many fliers afraid to use their radios for fear they might use the wrong words, and be reprimanded by the CAA. Nothing like that could possibly happen. Our communicators understand any kind of English. They'll answer any kind of English."

"The 'patter' built up over the years for air com-

munication saves time, and helps to standardize service, but it isn't required. The blasé way experienced pilots throw this patter around probably has made beginners self-conscious, but any pilot can pick up his transmitter and say 'Hey, look, this is Joe Doakes, and I'm going to Louisville. How's the weather over there?' and he will get the same kind of good service anybody gets. He can be ungrammatical or use Brooklynese or a Birmingham drawl, or a Texas twang, and he will be just as welcome in our earphones as the hot-shot pilot who knows how to say 'Roger.' Of course, when you do learn the short and standard procedures, it will help to speed up our services to you and to others and avoid possible misunderstandings."

"We want safe flying. Radio promotes safety. Let's all use it in routine as well as emergency cases."

14 Recommendations Made to CAA By Airports Advisory Committee

Fourteen recommendations covering a wide range of airport policies, practices and allied problems, have been submitted by the CAA Airports Advisory Committee to D. W. Rentzel, Administrator of Civil Aeronautics. The recommendations, which are now under study by the CAA, were formulated at the Advisory Committee's meeting at Miami in June.

The recommendations, presented in a letter to the Administrator by A. B. Curry, committee chairman, follow:

"(1) Disseminate More Widely Airport Use Committee Reports: The committee recommends that the Airport Use Committee reports be more widely disseminated to airport managers and operators. Prior to their dissemination they should be intelligently digested and point up the major failings which would be applicable to all airports. There appears from the Airport Use Committee reports to date that there are certain deficiencies which are presently 'bottle-necking' the potential flow of traffic.

"(2) Bleed-off Taxiways and Warm-up Pads for Airports: The Committee feels that wider dissemination on the utilization of bleed-off taxiways and warm-up pads at airports is essential. It is apparent that the use of such taxiways and warm-up pads would greatly reduce the amount of time that aircraft occupy the runway. Also, it is the feeling of the committee that such bleed-off taxiways will increase the acceptance rate of the airport and that warm-up pads will greatly facilitate the dispatch of the aircraft.

"(3) Pavement Evaluation Study: The committee would like to take this opportunity to commend the Administration for its present work in connection with the pavement evaluation study; however, we would like to call to the attention of the Administration the foreseeable need for including in the study the questions of 'the effect of jet operations' and 'proposed braking devices of all aircraft.'

"(4) Aviation Evaluation Study at State Level: The committee feels that such a study has much merit; however, they would like to advise the Administration that the plan for such a study be well coordinated with all interested parties and a clear objective and purpose be established prior to the initiation of such a study.

"(5) CAA Intermediate Fields: The committee is in agreement with the CAA present policy and criteria for the disposal of CAA intermediate fields but would like to take this opportunity to call to the attention of the Administration that every effort be made to induce a public agency or, if possible, a private agency to continue and maintain the operation of these fields at no cost to the Federal Government, prior to their disposal.

"(6) Use of Approach Lights at Certain Airports: The committee recommends that the Administration initiate a study with regard to the present regulation calling for the burning of approach lights between the hours of dusk and dawn at all types of airports. The committee is cognizant of the fact that approach lights have only been installed at controlled airports but questions the economic feasibility of burning the lights when no schedules of traffic exist.

"(7) Free Space Occupied by Nonaviation Federal Agencies at International Airports: The committee is of a strong opinion that nonaviation Federal agencies should directly reimburse airport owners for space required to carry out their activities; i. e., Post Office, Customs, Immigration, Agriculture, and Public Health. They feel that the proposal presented to the committee of a package lease to be administered by the General Services Administration is a sound one and that every effort should be made to expedite this arrangement.

"(8) Rates and Charges at Airports: The

committee would like to handle the question of rates and charges at airports in the following manner: (a) That the committee continue to study the question of the basis of rates and charges; (b) that the committee send out a questionnaire to a cross section of airports to determine what their practices are now and what their future practices will be for determining the basis of rates and charges; (c) that the committee assemble and compile data on the present basis of rates and charges at all airports; (d) that a subcommittee of the Airports Advisory Committee be appointed consisting of Messrs. Albrecht, Berry, Curry, Gray, and Martin to meet with representatives of the Air Transport Association to study the question of the basis of rates and charges at airports, and that this information and discussion be completely confidential; (e) that all data gathered be compiled and presented to this committee for further study prior to the next meeting; (f) that with this information available to the committee, this matter then be placed on the agenda of the next meeting so that we will be in a position to render to the Administrator recommendations on this subject.

The committee is not seeking any standardization for rates and charges and, also, that the Administration has made itself quite clear that it does not propose to enter into any negotiation between the air carrier and the operators, and that the above-mentioned study should be confined to the landing area only.

"(9) Division of Responsibility by the CAA, the Management and the User of the Airport Under Adverse Conditions: The committee feels that the division of responsibility should be that the management advises the traffic control tower or dispatch service of the users as to actual field conditions. The control tower or dispatchers advise the user of the airport; therefore management and the CAA would assume no liability for accidents occurring after prior notification to the user of actual field conditions.

"For example, management advises the air traffic control tower or dispatch service that there are four inches of snow on runway X. Tower and dispatch service notifies users of the airport of actual field conditions. If user desires to use the field under advised conditions he assumes risk of same. The above recommendation has been brought to the Administration with a view that it might be considered for incorporation into 'ANC Procedures for the Control of Air Traffic.'

"(10) Runway Markings: The committee in reviewing drawing ANC-1100, which is presently required under TSO-10, believes that it leaves much to be desired in runway marking; therefore, it is recommended that volunteer sites at Atlanta, Kansas City, Memphis, Fort Worth, and Miami be permitted or granted waivers to experiment with various types of runway marking. The committee members who have volunteered the usage of their airports for such experimentation will submit schematic drawings for the purpose of obtaining such waivers. We believe that a full experimentation with runway markings should be accomplished prior to any universal standardization of such markings. The committee also feels that

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Civil Aeronautics Administration

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billboard-type runway marking should be included in the experimentation.

"(11) Two-way Radio Requirements at Certain Airports: The committee believes that the proper approach for two-way radio requirements is for the Administration to be given the authority to require, at certain airports, two-way radio for aircraft entering into control zones of controlled airports.

We believe that this requirement should be initiated at our larger or congested airports. This recommendation should not be construed to mean that non-equipped aircraft entering controlled zones should not be allowed to enter satellite fields under certain conditions. We feel that the Administration should widely disseminate, particularly to manufacturers, the essential requirements of two-way radio with very high frequency equipment which will be required in all control zones.

"(12) Traffic Patterns at Airports: The committee believes that effective use of traffic patterns at controlled airports could be accomplished if the CAA would initiate all action pertaining to traffic patterns. That is, coordinating their use and purpose with airport management and the users of the airport.

"It is understood by the committee that the airport traffic control tower personnel of the CAA at the present time has the authority to deviate from the use of the prescribed patterns when warranted and requested by the user. We further believe that at the uncontrolled airports the Administration should continue its waiver policy of permitting deviations from standard patterns at specific airports provided communication service is afforded to the users of the airport. Waivers should be permitted for straight-in-approaches under certain circumstances.

"(13) Recommendations for Increased Proficiency of Private Flyers: The committee recommends that the Administration initiate a study as to the feasibility of adopting a higher license rating for private flyers which would require a greater degree of skill in the operation of small type aircraft.

"The committee feels that this is warranted because of the implementation of the various electronic aids to our Federal Airways System. It has been suggested that possibly the pilots ratings used presently by the Air Force may serve as a guide in establishing the higher grade license for private flyers.

"(14) Zoning at Airports: The committee recommends that the Administration compile explanatory data and disseminate necessary information which would encourage the communities and public agencies operating airports to adequately protect airport facilities by proper zoning laws."

Air Traffic Recommendations Offered For Los Angeles and San Francisco

Recommendations based on studies of air traffic problems in the Los Angeles and San Francisco areas by the industry-government Airport Use Committee were announced recently by D. W. Rentzel, Administrator of Civil Aeronautics, and chairman of the committee.

The committee accepted 22 recommendations for Los Angeles and 12 for San Francisco that were submitted by the subcommittee, which made the surveys at the 2 cities.

The Airport Use Committee was formed last December for the purpose of (1) determining ways and means to obtain the highest degree of safety to all users, (2) to relieve congestion of traffic, and (3) to encourage civilian and military use if possible, at all the major air terminals of the country.

The studies at Los Angeles and San Francisco were the eighth and ninth made by the committee. Previously, recommendations were made following studies at Minneapolis-St. Paul, St. Louis, Chicago, Newark, Boston, Jacksonville, and Miami.

The Airport Use Committee has industry and government aviation representation: Air Transport Association, Aircraft Owners and Pilots Association, Air Force, Air Reserve Forces, Navy, Civil Aeronautics Board, Civil Aeronautics Administration and Airport Advisory Committee.

The recommendations for Los Angeles and San Francisco are as follows:

Los Angeles.—1. That inauguration of direct radio communication between the Los Angeles center and aircraft in flight be expedited.

2. That the CAA program of educational gatherings of private pilots to discuss regulations, good flying practice and similar subjects be intensified not only in the sixth region but all over the country.

3. That the CAA take corrective action to insure that violators are being properly prosecuted and that information regarding such violations be more widely distributed to act as a deterrent to the local feeling regarding laxity of enforcement.

4. That the CAA, in coordination with other interested groups, initiate a study to develop practical aircraft radio requirements and a method of uniformly applying these requirements.

5. That consideration be given to revising Part 60 of the Civil Air Regulations to include weather minimums below which VFR flight with a traffic clearance in a control zone will not be permitted.

6. That the Los Angeles Airport management be required to relax their regulation prohibiting turns below 1,000 feet to permit use of this procedure in expediting take-offs of IFR flights.

7. That the airport management of San Fernando Valley Airport (Van Nuys) properly disseminate the traffic patterns for that airport and that segmented circle markings be installed.

8. That the desirability of imposing either recommended or mandatory "speed limits" on high-speed aircraft operated at low altitudes in congested areas be further studied by the operating agencies.

9. That the CAA take necessary corrective action to clarify field interpretations of Civil Air Regulations.

10. That local traffic agreements be held to a minimum and that the CAA give these agreements wide spread dissemination.

11. That the CAA policy of issuing waivers to scheduled air carrier operators to allow straight-in approaches at uncontrolled airports in the Sixth Region under certain limitations be extended to all regions.

12. That CAA ascertain the status of aviation easements in existence at Burbank and Los Angeles International Airports.

13. That CAA ascertain in the near future the possibilities under existing statutes of prohibiting the construction of obstructions in approach areas of airports. If CAA finds they do not have authority to prevent

the construction of obstructions, immediate request for such legislation should be proposed. The meaning of the word "obstruction" should mean, besides a physical hazard, the location of any activity that would require a change from standard safe traffic patterns because of possible noise abatement.

14. That the Navy and CAA review the need for establishing a standard instrument approach procedure for the Naval Air Station, Los Alamitos.

15. That Los Angeles County and the State Aeronautics Commission be informed by the CAA that smog is the greatest single hazard to aviation in the area and that in the opinion of the aviation segments of the country, considerable improvement can be made through concerted effort to eliminate smoke conditions.

16. That more publicity be given to the fact that military GCA facilities are available without cost for practice by civilian pilots.

17. It is recommended that the CAA carefully scrutinize the proposed development and expansion program at the Los Angeles International Airport, and require a more definite master plan including correction of operational deficiencies in present planning as well as a practical step-by-step construction program, before additional Federal aid is granted.

18. It is also recommended that before any final plans for a layout for the Los Angeles International Airport are approved, these plans shall have been made with the help and advice of present users of that airport and particularly those aircraft manufacturers who already are planning jet transport aircraft.

19. That the CAA review and re-emphasize criteria for the spacing of airports and that such criteria be taken into consideration in the planning of future airport development.

20. That CAA initiate and sponsor Federal legislation regulating obstructions to air navigation including protection for approaches to airports required in interstate air commerce.

21. That the CAA encourage the enactment of local zoning ordinances.

22. That the planning with respect to siting of navigation facilities be properly coordinated with local air traffic control, aviation safety offices, and interested operators prior to site selection.

San Francisco.—1. That inauguration of direct radio communication between the Oakland Center and aircraft in flight be expedited.

2. That the CAA in coordination with other interested groups initiate a study to develop practical aircraft radio requirements and a method of uniformly applying these requirements.

3. That prior to discontinuing the Navy radio range at Moffett proper coordination be effected with civil aviation interests.

4. That the CAA increase in-flight familiarization by air traffic control field personnel. In addition, corrective action should be taken by the sixth region CAA, toward improving liaison between regional and field air traffic control personnel and other aviation interests.

5. That the California National Guard reconsider the move from Oakland to Hayward Airport and that retention of the National Guard unit at Oakland

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CAA Awards Contract For 44 Civilian-Type VHF-ADF Installations

The Civil Aeronautics Administration has announced a contract award for the first civilian-type aircraft direction finders—devices which will enable air traffic controllers to identify aircraft within range of their surveillance radar screen during communication with that aircraft.

A total of 44 of these "very high frequency aircraft direction finders" (VHF-ADF) are covered in the contract with Bendix Aviation Corp. They are to be installed at airports now equipped, or to be equipped, with surveillance radar equipment.

In operation, the ADF is linked with the scope of the surveillance radar and actuated by the VHF radio impulses from the aircraft being contacted. A line of light is drawn on the screen from the aircraft "pip" to the center of the scope. This enables the airport traffic controller talking to the aircraft to be certain which of the "pips" on his screen represents the plane with which he is in communication, and permits him to give the pilot directions for entering the landing pattern with assurance.

The ADF installations require no additional equipment aboard the aircraft, since the VHF radio transmitter already installed aboard the craft will automatically activate the direction finder when in use.

Airports in which the VHF-ADF's are tentatively scheduled for installation include:

Los Angeles, New York (both La Guardia and Idlewild), Chicago (Midway), Atlanta, Cleveland, Washington, Boston, Newark, Houston, Pittsburgh, Seattle, Philadelphia, Detroit, Portland, Oreg.

Norfolk, Indianapolis, San Francisco, Columbus, Ohio; Oakland, New Orleans, Covington, Ky. (Greater Cincinnati), Salt Lake City, St. Louis, Kansas City, Mo.; Dallas, Denver, Memphis, Minneapolis, Birmingham, Jacksonville.

San Antonio, Nashville, Corpus Christi, Louisville, Buffalo, Oklahoma City, Baltimore, Knoxville, Dayton, Ohio; Long Beach, Harrisburg, Burbank, Calif., and Fort Worth.

357 Civil Aircraft Engines Shipped by Industry in May

May 1950 shipments of civil aircraft engines numbered 357, representing 167,900 horsepower, and were valued at \$2,143,000, according to a report issued jointly by the Civil Aeronautics Administration and the Bureau of the Census, Department of Commerce. Total value of all shipments made by civil aircraft engine manufacturers—complete engines, spare parts and other products—was \$6,373,000 or \$2,674,000 more than the value of shipments during the same month of last year.

A tabulation of civil aircraft engine shipments for May 1950 follows:

Civil Aircraft Engine Shipments

	1950		1949 May
	May	April	
Number (total)	357	479	477
Horsepower output (thousand horse-power)	167.9	153.1	121.0
Value (thousand dollars)	\$6,373	\$4,888	\$3,699
Complete engines	2,143	1,733	1,365
Parts	3,864	2,967	2,150
Other products	366	188	184

Official Actions Civil Aeronautics Board

Regulations

ER-157 Effective June 26, 1950

Amends Part 234 of the economic regulations regarding requests by the Board for additional information in mail rate cases.

Amdt. 42-5 Effective July 1, 1950

Amends Part 42 of the Civil Air Regulations so as to facilitate administration and enforcement of the safety requirements contained therein.

Amdt. 20-7 Effective August 10, 1950

Amends Part 20 of the Civil Air Regulations:

1. By adding a new § 20.13 to read as follows:

20.13 Computation of flight time. Flight time shall be computed as follows:

(a) Powered aircraft. Flight time had in powered aircraft shall be computed in hours and minutes.

(b) Glider. Flight time had in a glider may be computed either in hours and minutes or by number of glider flights. Ten short-pattered and released glider flights may be counted as 1 hour of flight time.

2. By amending § 20.25 (b) to read as follows:

20.25 Aeronautical experience. * * * (b) Glider. An applicant for a glider rating shall have had at least 100 glider flights, or 10 hours of glider flight time including at least 50 glider flights. At least 25 of the required total number of flights shall have included 360° turns. As part of his aeronautical experience an applicant shall have had at least 1 hour of flight instruction in the recovery from stalls entered from all normally anticipated flight attitudes.

3. By amending § 20.26 (b) to read as follows:

20.26 Aeronautical skill. * * * (b) Glider. (1) At least 2 flights, 1 of which shall include a 360° approach to the right and one to the left, landing each time within 200 feet beyond a designated line or point;

(2) recovery from stalls entered from all normally anticipated flight attitudes. (Stall maneuvers may be demonstrated in airplanes.)

4. By amending § 20.35 (b) to read as follows:

20.35 Aeronautical experience. * * * (b) Glider. An applicant for a glider rating shall have had at least 250 glider flights, or 25 hours of glider flight time including at least 125 glider flights. At least 25 of the required total number of flights shall have included 360° turns. As part of his aeronautical experience an applicant shall have had at least 1 hour of flight instruction in the recovery from stalls entered from all normally anticipated flight attitudes.

5. By amending § 20.36 (b) to read as follows:

20.36 Aeronautical skill. * * * (b) Glider. (1) At least 2 flights, 1 of which shall include a 360° approach to the right and one to the left, landing each time within 100 feet beyond a designated line or point;

(2) a spiral in each direction of not less than 3 full turns in a banked attitude of not less than 45°;

(3) a demonstration of satisfactory technique in the performance of glider flight when towed by an automobile or a winch;

(4) a demonstration of satisfactory technique in the performance of glider flight when towed by an airplane during climb, and when above, below, and to one side of the towing airplane slipstream while in level flight; and

(5) recovery from stalls entered from all normally anticipated flight attitudes. (Stall maneuvers may be demonstrated in airplanes.)

6. By amending § 20.41 to read as follows:

20.41 Flight instructor rating. A flight instructor rating may be issued to an applicant who meets the following requirements:

(a) Age. 18 years.

(b) Knowledge. An applicant shall pass a theoretical and practical examination on his competency to instruct students in flight.

(c) Experience. An applicant shall be a commercial pilot or a private pilot who has met the experience requirements for the issuance of a pilot certificate with a commercial pilot rating.

(d) Skill. An applicant shall demonstrate in each category of aircraft in which he desires to give flight instruction his ability to perform with precision and to teach such flight maneuvers as are necessary and appropriate for instruction in the safe piloting of that category of aircraft.

Prior to adoption of this amendment, Part 20 established the certification requirements for glider pilots, but did not require that an applicant for a pilot certificate with a glider rating have any amount of supervised training. Moreover, the provisions of Part 20 did not provide for the issuance of a flight instructor rating to a pilot holding a pilot certificate with only a glider rating.

This amendment is designed to clarify and simplify the certification requirements for the issuance of pilot certificates with glider ratings, to provide that all applicants for pilot certificates with glider ratings have at least 1 hour of flight instruction in the recovery from stalls, and to provide that flight instructor ratings may be issued to glider pilots. This amendment also establishes a clearer and more appropriate method of computing glider flight time by providing that 10 short-pattered and released glider flights may be counted as 1 hour of flight time. Glider flight time is normally logged in terms of the number of flights flown rather than the number of hours flown. Thus, this amendment will eliminate the difficulty currently experienced by providing a standard for the conversion of glider flights into glider flight time.

Part 43 is being amended concurrently with this amendment to provide that a commercial glider pilot may give flight instruction in gliders and that a flight instructor shall not give flight instruction in a category of aircraft in which he has not demonstrated to an authorized representative of the Administrator his proficiency as a flight instructor.

Amdt. 43-2 Effective August 10, 1950

Amends Part 43 of the Civil Air Regulations:

1. By amending § 43.61 to read as follows:

43.61 Commercial pilot. A commercial pilot may pilot aircraft for hire. A commercial glider pilot may give flight instruction in gliders.

2. By adding paragraph (d) to § 43.64 to read as follows:

Corrections to CAR's

Part 3 of the Civil Regulations as amended to November 1, 1949, should be corrected as follows:

1. On page 12 in paragraph 3.217 (b) the expression V_t in lines 3 and 9 should be changed to V_{t+} .

2. On page 6 in figure 3-12 (a) the expressions nWb'/d' and nWn/d' should be reversed.

Part 61 of the Civil Air Regulations, as amended to September 1, 1949, should be corrected as follows:

1. On page 3 in paragraph 61.31 (b) change the word "models" to read "types."

2. On page 9 in paragraph 61.213 (a) the section number "61.218" should be corrected to read "61.222."

3. On pages 9 and 10 in paragraph 61.214 (d) correct the section numbers "4a.75322-T or 4b.1223" to read "4a.749a-T or 4b.98."

suspended 4 months from April 5, for "buzzing" a swimming pool and ball park.

Private pilot certificate of Richard William McCarley, Blackfoot, Idaho, suspended 30 days from April 21, for piloting an aircraft under instrument flight rules when he did not hold a valid instrument rating and for piloting an aircraft within a control zone without air traffic clearance when the flight visibility was less than 3 miles.

Private pilot certificate of James Nelson, Anchorage, Alaska, suspended 4 months from April 6, for piloting an aircraft under instrument flight rules when he did not hold a valid instrument rating and for taking off from Merrill Field at Anchorage under conditions of poor visibility contrary to air traffic control instructions.

Student pilot certificate of Everett D. Harbeson, Augusta, Ga., suspended 6 months from April 29, for low flying over a farm on a flight which ended in a crash in which he was injured.

Private pilot certificate of Charles Emmet Anders, Olathe, Colo., suspended 90 days from April 24, for low flying, with a passenger, over a farm residence.

Private pilot certificate of Thomas A. Peterson, Olathe, Colo., suspended 60 days from April 25, for low flying and engaging in acrobatic flight at an altitude of less than 1,500 feet.

Private pilot certificate of Virgil Harrison Pemberton, Hill City, Kans., suspended 6 months from March 3, for piloting an aircraft which did not carry registration and airworthiness certificates and for stalling the aircraft to a crash while hunting coyotes, resulting in serious injuries to himself and minor injuries to a passenger.

Commercial pilot certificate of Thurlow Kemper Cornwell, Jr., Los Angeles, Calif., suspended 6 months from April 7, for operating an aircraft other than the category, class, and type for which he was rated.

Private pilot certificate of Jesse R. Davis, Jr., Los Angeles, Calif., suspended 3 months from April 5, for piloting an aircraft, carrying a passenger, and failing to remain clear of fog and clouds and for operating an aircraft on instruments when he did not hold a valid instrument rating.

Private pilot certificate of Henry G. Wanderer, Sunnyvale, Calif., suspended 30 days from April 4, for flying in cloud formations when he did not possess a valid instrument rating.

Private pilot certificate of Franklin Merritt Baker, Lompoc, Calif., suspended 60 days from April 21, for piloting an aircraft, carrying a passenger, at an altitude of less than 500 feet in the vicinity of a grounded ship on a flight which ended in a crash when the plane struck a heavy wire cable.

Private pilot certificate of Oscar Malaranga, Los Angeles, Calif., suspended 30 days from April 21, for piloting various aircraft when he did not possess a currently effective medical certificate.

Commercial pilot certificate of Vol Reed Harris, Jr., Lubbock, Tex., suspended 6 months from April 13, for piloting an aircraft which had not been issued an airworthiness certificate and when he did not have pilot and medical certificates in his possession.

Private pilot certificate of Clayton Willard Sanders, Idalou, Tex., suspended 6 months from April 13, for performing major repairs on an aircraft, although he is not a certified mechanic, and for operating and authorizing the operation of an aircraft which had not been examined, inspected, and approved by a duly authorized representative of the Administrator.

Private pilot certificate of Thurston J. Hinway, Wichita Falls, Tex., suspended 60 days from April 20, for low flying over a congested area of Wichita Falls.

Private pilot certificate of L. W. Johnson, Omaha, Nebr., suspended 60 days from April 20, for taking off from Wold Chamberlain Field at Minneapolis contrary to air traffic control instructions and for piloting his plane in such close proximity to another aircraft operating from an airport that a collision hazard was created.

Private pilot certificate of Elden J. McHattie, St. Paul, Minn., suspended 60 days from April 22, for low flying over a congested area.

Private pilot certificate of Virgil W. Harvey, Elkhart, Ind., suspended 6 months from April 12, for piloting an aircraft when he did not have valid pilot and medical certificates in his possession, for operating an aircraft within a control zone when the ceiling was less than 1,000 feet, and for landing within a control zone when the visibility was less than 3 miles.

Private pilot certificate of Willard Harold Eisele, Lake Mills, Wis., suspended 6 months from April 4, for low flying.

Private pilot certificate of Harold J. Camp, Petersens, Neb., suspended 60 days from April 7, for entering a control zone without permission from air traffic control when the ceiling was less than 1,000 feet and for operating an aircraft within a control zone when the visibility was less than 3 miles without obtaining permission from air traffic control.

Private pilot certificate of John I. Grocholski, Jr., Walled Lake, Mich., suspended 3 months from April 8, for operating an aircraft in the vicinity of Detroit City Airport without maintaining contact with air traffic control and for landing at this airport, a control zone, when the visibility was less than 3 miles.

Private pilot certificate of James Louis Remmer, Cincinnati, Ohio, suspended 30 days from April 15, for operating an aircraft between sunset and sunrise without displaying position lights.

Private pilot certificate of Harold Howard Smalley, Alton, Ill., suspended 6 months from April 5, for low flying over a congested area.

Private pilot certificate of Norman Edward Payne, Waldo, Wis., suspended 60 days from April 3, for attempting a downwind, down-hill take-off in a field approximately 1,000 feet in length and crashing into a fence.

Private pilot certificate of Ivan Victor Ilg, Canton, Ohio, suspended 45 days from April 8, for piloting an aircraft within a control zone when the ceiling was less than 1,000 feet, for entering a control zone under instrument flight rules without filing a flight plan, and for entering a control zone without obtaining clearance from air traffic control.

Private pilot certificate of Donald Wilbur Hall, Wadsworth, Ohio, suspended 6 months from April 6, for low flying over a congested area and for making several diving passes over a farm residence.

Private pilot certificate of Logan Joseph Bickley, Kelly Island, Ohio, suspended 60 days from April 15, for failing to conform to the traffic pattern at Lake Front Airport at Cleveland.

Safeties Orders

S-339 suspends for 60 days, private pilot certificate of Raymond Lester Briggs (June 8).

S-340 affirms examiner's initial decision suspending private pilot certificate of Henry Walter Wojnarowski, suspension to become effective June 22, 1950 (June 12).

S-341 vacates examiner's decision and remands for hearing the proceeding involving suspension of Gilbert O. Foster's commercial pilot certificate (June 15).

S-342 denies appeal from the examiner's decision revoking the mechanic certificate of Clarence E. Michehl (June 15).

S-343 affirms examiner's decision suspending for 60 days private pilot certificate of Don W. Huck (June 15).

S-344 affirms examiner's decision suspending for 4 months commercial pilot certificate of Dale C. Smith (June 15).

S-345 affirms examiner's conclusion that proceeding against Ernest C. Jaco be dismissed (June 15).

S-346 affirms examiner's initial decision revoking private pilot certificate of Warren A. Sherer (June 26).

S-347 amends examiner's initial decision so as to change the period of suspension of Nelson J. Phillips' private pilot certificate from 6 months to 90 days (June 26).

Suspensions

Commercial pilot certificate of Allan Dean, Detroit, Mich., suspended 3 months from April 8, for piloting an aircraft which had not been given an annual inspection within the preceding 12 months.

Private pilot certificate of Allen J. Gross, Moscow, Idaho, suspended 30 days from April 11, for attempting to start the engine of an aircraft with the throttle almost completely open, causing the aircraft to crash into a gasoline pump.

Private pilot certificate of Lyle D. Thompson, Seattle, Wash., suspended 4 months from April 8, for low flying, with a passenger, over a congested residential district.

Private pilot certificate of Ephriam E. Anderst, Filer, Idaho,

Revocations

Temporary student pilot certificate of Raymond Jerome Smith, Tacoma, Wash., revoked, for carrying a passenger.

Private pilot certificate of Donald R. Murdock, Tacoma, Wash., revoked, for piloting an aircraft which was not in an airworthy condition, for failing to conform to the traffic pattern of Tacoma Airport, and for low flying and performing acrobatics over a congested area.

Commercial pilot certificate of Don D. Shankland, Seattle, Wash., revoked, for performing major and minor changes and repairs to an aircraft without being under the supervision of a certified mechanic; returning the aircraft to service without having it examined, inspected, and approved by a duly authorized representative of the Administrator; making entries in the engine and aircraft log and signing same after accomplishing minor repairs and not being a certified mechanic; operating an aircraft without having the proper identification marks on the aircraft; operating an aircraft that was in an unairworthy condition; performing work on an aircraft without keeping current and accurate aircraft and engine log books; operating an aircraft in the vicinity of an airport where air traffic control was in operation without maintaining contact with air traffic control; and for various acts considered operating an aircraft in a careless and reckless manner.

Flight instructor rating of Albert Daniel Jones, Shawnee, Kans., revoked, for giving instructions in stalls and spins when neither he nor his student was equipped with an approved parachute.

Student pilot certificate of Theodore Lester Crow, Cresco, Iowa, revoked, for carrying a passenger.

Commercial pilot certificate of Roger M. Brandt, Marysville, Calif., revoked, for piloting an aircraft while he was under the influence of intoxicating liquor. He was injured in a crash when he attempted to take off at night from Lewistown Municipal Airport, Lewistown, Mont.

Commercial pilot certificate of Irvin E. Gutshall, Spokane, Wash., revoked, for piloting an aircraft at tree-top level while he was under the influence of intoxicating liquor on a flight which ended in a crash in which he and a passenger were injured.

Student pilot certificate of Charles Lee La Bree, Mile City, Mont., revoked, for carrying his brother as a passenger, on a flight ending in a crash in which both were injured.

Student pilot certificate of Charles L. Taggart, Winner, S. Dak., revoked, for carrying a passenger.

Private pilot certificate of Robert W. Clawson, Delphi, Ind., revoked, for carrying passengers for hire on a flight in which he and his two passengers were injured in a crash.

Student pilot certificate of Samuel Worth Selbe, Cleveland, Ohio, revoked, for carrying a passenger and for failing to make a written report of an accident.

Private pilot certificate of Harry E. McConnell, Altoona, Pa., revoked, for low flying over a congested area.

Private pilot certificate of John Richard Laird, Elmira, N. Y., revoked, for low flying over a congested area.

Student pilot certificate of Gordon Norman Folster, Old Town, Maine, revoked, for engaging in acrobatic flight within the control zone of Old Town Airport and for piloting an aircraft at tree-top level between two houses and crashing into electric power lines.

Student pilot certificate of Victor M. Brown, Albany, N. Y., revoked, for carrying another student pilot as a passenger.

Student pilot certificate of Roy E. Moore, Albany, N. Y., revoked, for carrying another student pilot as a passenger.

Student pilot certificate of John Lynch, Gloversville, N. Y., revoked, for carrying a passenger on a flight which ended in a crash.

Private pilot certificate of Colin John O'Driscoll, Irvington, N. J., revoked, for low flying over a group of people, including small children, on a beach on a flight which ended in a crash.

Commercial pilot certificate of Leland H. Waters, Jr., Richmond, Va., revoked, for piloting an aircraft in and out of cloud formations in the vicinity of Byrd Field so as to create a collision hazard for an airliner, and for other CAR violations, including acrobatics at low altitude, over a large open-air assembly of persons, and within a civil airway.

Private pilot certificate of Frank Anthony Alliger, Philadelphia, Pa., revoked, for low flying over a congested area and for performing acrobatics over an open-air assembly of persons.

Private pilot certificate of Robert Frank Cheek, Rock Hill, S. C., revoked, for low flying over a congested area of Rock Hill on a flight which ended when the aircraft struck a power line, crashed to the ground, and burned.

Private pilot certificate of Charles Eugene Moss, Gaffney, S. C., revoked, for operating an aircraft for hire and for low flying on a flight in which he was injured when the plane crashed.

Private pilot certificate of Robert C. Hamilton, Pass-a-Grille Beach, Fla., revoked, for operating an aircraft between sunset and sunrise when no position lights were displayed.

Private pilot certificate of Dwight S. Keller, Tokyo Quartermaster Depot, revoked, for failing to surrender his certificate to the Administrator after it had been suspended for a period of 6 months.

Nonscheduled air carrier operating certificate of Eugene L. Isaacs, d. b. a. Pinedale Flying Service, Pinedale, Wyo., revoked, for not maintaining an aircraft or any records and files as required.

Private pilot certificate of Jerry R. Durcan, Des Moines, Iowa, revoked, for failing to maintain contact with the control tower at Des Moines Municipal Airport and for entering the control zone without clearance from air traffic control, so that a scheduled air-line transport making an ILS approach had to be rerouted.

Student pilot certificate of John H. Britcliffe, Mather Field, Calif., revoked, for low flying and performing acrobatics at low altitude over a congested area of Sacramento.

Private pilot certificate of John R. Elmore, Jr., Shepherd, Tex., revoked, for piloting an aircraft, carrying a passenger, while he was under the influence of intoxicating liquor. During an attempted take-off from an unlighted airport, the aircraft ran off the runway, struck a tree and was damaged.

Private pilot certificate of Paul Leonard Prestegard, Richland Center, Wis., revoked, for piloting an aircraft which did not carry registration and airworthiness certificates and which had not had an annual inspection within the preceding 12 months, and when he did not have valid pilot and medical certificates in his possession.

Private pilot certificate of Joseph Newton Moreton, Glasco, Ky., revoked, for operating an aircraft, carrying a passenger, while he was under the influence of intoxicating liquor, and for failing to conform to the traffic pattern at Peoria Municipal Airport.

Private pilot certificate of Thomas Espenship, Detroit, Mich., revoked, for low flying, with a passenger, in the vicinity of National Airport, Garden City, Mich.

Temporary private pilot certificate of Burton Lee Williams, Albion, Mich., revoked, for low flying and "buzzing" persons and property on a flight which ended in a crash in which he and a passenger escaped without serious injuries although the aircraft was demolished.

Private pilot certificate of Roy E. Payne, Terre Haute, Ind., revoked, for performing acrobatics at low altitude over Camp Breckenridge.

Private pilot certificate of Daniel H. Kenny, Wayne, Mich., revoked, for low flying over his father's home and "buzzing" his father's automobile on a flight in which he and his brother, a passenger, were injured when the aircraft struck a power line and crashed.

Private pilot certificate of James Hedges Mulford, East Hampton, N. Y., revoked, for carrying a passenger in an aircraft which was not in an airworthy condition and for low flying over congested areas.

Student pilot certificate of Michael Frank Polito, Brooklyn, N. Y., revoked, for carrying a passenger.

Student pilot certificate of Earl Douglas Kohloff, Wauwatosa, Wis., revoked, for failing to surrender his certificate to the Administrator in accordance with an examiner's initial decision suspending the certificate for a period of 6 months.

Airline Orders

E-4195 denies application of S. S. W., Inc., for an exemption from certain provisions of the Act, and the economic regulations, which would permit the carrier to operate certain flights between the United States and Europe (May 19).

E-4196 denies application of U. S. Air Coach for an exemption from certain provisions of the Act, and the economic regulations, which would permit the carrier to operate certain flights between the United States and Europe (May 19).

E-4197 denies application of Aero Finance Corp. and C. N. Shelton, d. b. a. European Atlantic Airlines, for a declaratory order or an exemption, so as to permit certain flights between New York and Rome for members of the Wisconsin Foreign Travel club and the Camerair club (May 19).

E-4198 denies application of Resort Airlines for an exemption which would permit it to operate 60 round-trip flights between the United States and Europe carrying members of bona fide religious groups (May 19).

E-4199 denies application of Airline Transport Carriers for an exemption which would permit it to operate flights carrying groups of persons between the United States, its territories, and Europe (May 19).

E-4200 denies application of Resort Airlines requesting authorization to operate specified round-trip, group charter flights between New York and Europe (May 19).

E-4201 grants Transoceanic Air Lines temporary exemption from the provisions of § 401 and § 404 (b) of the Act and part 291 of the economic regulations, so as to permit certain round-trip flights between Europe and the United States, pursuant to certain contracts with various religious organizations (May 19).

E-4202 grants Eastern leave to intervene in the matter of certain charges for excess baggage proposed by Braniff, Continental, and Pioneer (May 19).

E-4203 dismisses application of Trans-World Shipping Corp. for a certificate of convenience (May 19).

E-4204 grants the Flying Tiger Line temporary exemption from the provisions of § 401 (a) of the Act, so as to permit the transportation of personnel in connection with the movement of property for the armed forces (May 22).

E-4205 amends order serial No. E-4150 in the matter of the investigation and suspension of certain air coach fares proposed by National Airlines (May 22).

E-4206 authorizes suspension of service and change of service patterns for Robinson Airlines Corp. on its route No. 94 (May 22).

E-4207 denies petition of Coastal Cargo Co. for reconsideration of the Board's order serial No. E-3944, or for an immediate hearing in the matter of an exemption which would permit it to operate certain cargo flights (May 23).

E-4208 orders an investigation of, and suspends until August 27, 1950, certain group educational one-way, round-trip fares proposed by Braniff Airways (May 23).

E-4209 orders an investigation of, and suspends for 1 week, a certain rule and fares proposed by American, TWA, and Western (May 23).

E-4210 grants Alaska Airlines temporary exemption from the provisions of § 401 (a) of the Act, and of paragraph 3(d) of order serial No. E-3134, so as to permit the carrier to operate 25 round-trip flights between Seattle, Wash., and points in Alaska, carrying fishermen employees and their equipment (May 23).

E-4211 grants Pacific Northern Airlines temporary exemption from the provisions of § 401 (a) of the Act, so as to permit the carrier to operate regular flights between Seattle, Wash., and points in Alaska, carrying fishermen employees and their equipment (May 23).

E-4212 denies petition of Slick Airways for leave to intervene in the matter of the activities and practices of American Airlines (May 23).

E-4213 orders American to cease and desist from certain activities and practices in violation within the meaning of § 411 of the Act (May 23).

E-4214 grants Robinson Airlines Corp. temporary exemption from the provisions of § 401 (a) of the Act, so as to permit it to serve Utica-Rome as an intermediate point on route No. 94; grants certain parties leave to intervene (May 23).

E-4215, E-4216, and E-4217 opinion and orders deny motions of Western Air Lines, Inland Air Lines, Colonial Airlines, and Florida Airways requesting that the Board issue an order requiring a recommended decision by the examiner in the matter of the mail rate hearings for each carrier (May 23).

E-4218 grants Inland Air Lines permission to serve Brookings, S. Dak., on route No. 33, on or about June 1, 1950, through the use of Brookings Municipal Airport (May 23).

E-4219 approves interlocking relationships existing as a result of the holding of certain positions by Erwin Balluder in Pan American World Airways, Pan American-Grace Airways, Urab, Medellin & Central Airlines, and Panair do Brasil (May 23).

E-4220 orders Northwest Airlines, Fly Freight, and Sterling Freightways to cease and desist from engaging in certain operations in violation of section 403 (b), 404 (b), and 401 (a) of the Act (May 24).

E-4221 extends period of investigation and suspension of certain fares, rules, and regulations proposed by National Airlines (May 24).

Civil Aviation Highlights

	1950	1949
Airports recorded with CAA, July 1...	6,449	6,443
By type:		
Commercial.....	2,453	2,758
Municipal.....	2,230	2,161
CAA Intermediate.....	127	151
Military.....	332	390
All others.....	1,307	983
a. Personal use.....	1,167	900
b. Miscellaneous government.....	149	83
Civil airports by class:		
Total.....	6,117	6,053
Class I and under.....	4,033	4,013
Class II.....	992	995
Class III.....	502	475
Class IV.....	370	364
Class V.....	138	133
Class VI and over.....	82	73
Total U. S. civil aircraft, July 1...	92,440	92,658
Scheduled air carrier aircraft, July 1...	1,170	1,061
Civil aircraft production, May		
Total.....	377	474
1- and 2-place models.....	114	147
3-, 4- and 5-place models.....	256	314
Over 5-place models.....	7	13
Certificates approved, May		
Student pilots.....	3,979	4,708
Private pilots.....	2,251	2,742
Commercial pilots.....	439	671
Airline transport pilots.....	63	97
Mechanics (original certificates).....	584	776
Ground instructors (original certificates).....	103	144
Flight instructor ratings.....	165	230
Instrument ratings.....	108	153
Control tower operators.....	66	169
Traffic control activity, May		
Aircraft operations, CAA airport towers.....	1,526,251	1,664,978
Fix positions, CAA airway centers.....	1,038,482	844,275
Instrument approaches, CAA approach control towers.....	23,902	19,588
Airport Operations		
Washington National, June		
Scheduled air carriers:		
Passengers departing.....	77,217	72,648
Passengers arriving.....	75,234	71,056
Aircraft arrivals and departures.....	10,102	11,869
Other aircraft arrivals and departures.....	3,247	5,208
San Francisco Municipal, May		
Scheduled air carrier:		
Passengers departing.....	50,497	45,800
Passengers arriving.....	49,013	45,824
Aircraft arrivals and departures.....	6,627	6,689
Other aircraft arrivals and departures.....	3,212	4,864
Oakland Municipal, May		
Scheduled air carrier:		
Passengers departing.....	5,233	5,758
Passengers arriving.....	4,850	5,091
Aircraft arrivals and departures.....	4,063	4,551
Other aircraft arrivals and departures.....	12,310	17,504
Miami International, May		
Scheduled air carrier:		
Passengers departing.....	50,367	37,134
Passengers arriving.....	44,589	35,486
Aircraft arrivals and departures.....	8,013	7,654
Other aircraft arrivals and departures.....	8,593	10,213
Los Angeles International, May		
Scheduled air carrier:		
Passengers departing.....	56,669	52,118
Passengers arriving.....	53,388	53,523
Aircraft arrivals and departures.....	8,483	8,249
Other aircraft arrivals and departures.....	5,777	7,002

¹ Airport type definitions: Commercial—Public use and public services, privately owned and operated. Municipal—Public use and public services, municipally owned and/or operated. CAA Intermediate—Public emergency use, no services, CAA operated. Military—Public restricted, military operated. All others—(a) Public emergency use only, no public services, privately owned for personal use; (b) Public emergency use only, no public services Government-owned Forest Service, etc.

E-4222 extends period of investigation and suspension of certain charges for excess baggage proposed by Braniff, Continental, and Pioneer (May 24).

E-4223 approves interlocking relationships existing as a result of the holding of certain positions by Thomas A. Slack, Fred W. Ayers, and Harry Rogers in Transcontinental & Western Air, Inc., and Hughes Tool Co. (May 24).

E-4224 grants the city of El Centro, Calif., and the city of Yuma, Ariz., leave to intervene in the *Reopened Additional California-Nevada Service* case (May 25).

E-4225 orders Compagnie Nationale Air France to cease and desist from certain violations of the Act with respect to the charge for transportation of property between New York City and points in Europe (May 25).

E-4226 orders K. L. M. Royal Dutch Airlines to cease and desist from certain violations of the Act with respect to the charges for transportation of property between New York City and points in Europe and the Middle East (May 25).

Landing Speed Excessive.—The execution of a final approach at an excessive air speed and a landing too far down the runway were given by the Board as the probable cause of an accident December 18, 1949, at Chicago Municipal Airport in which a TWA plane was extensively damaged. One passenger was slightly injured.

When the flight, which had originated at San Francisco, arrived in the Chicago area, the weather was below landing minimums. When informed that traffic conditions would result in a delay in landing estimated at 2 hours, the captain requested clearance to proceed to an alternate airport. While en route to another airport, the flight was advised to return to Chicago, where an immediate landing could be made.

At Chicago, an ILS approach was started but abandoned because the aircraft was too far to the right of the localizer course. On a second approach, the aircraft touched down approximately 3,200 feet from the approach end of the runway, which was wet but without standing water. The plane traveled the remaining 2,530 feet of the runway, went through the airport fence, and came to rest in the adjacent street.

The crew stated that throughout the landing run the braking action was not effective. The Board said that on examinations made after the accident, the brakes were found to function normally. The worn condition of the tires and tire marks on the runway were cited as additional evidence that the brakes were not defective.

"It is well established," the Board said, "that the coefficient of friction of rubber tires on wet runway surfaces is very low at high speeds." Since the captain knew that the runway was wet, the Board added, "he should have used greater precaution during his approach, so that the landing would be made with sufficient runway remaining within which to stop."

Aircraft Struck Hill.—Failure to fly at the assigned altitude on an instrument flight plan, which resulted in the aircraft striking a hill obscured by clouds, was the probable cause of an accident near Vallejo, Calif., December 7, 1949, the Board decided after an investigation. Six passengers and three crew members were killed. The aircraft, operated by California Arrow Airlines, an intrastate carrier, was destroyed by impact and fire.

The flight had departed Burbank, Calif., for Oakland and Sacramento and shortly before the accident had taken off from Oakland on a 30-minute flight to Sacramento. Approximately 7 minutes before the accident, the flight reported that it was at 4,000 feet.

The initial point of impact was at an elevation of 782 feet, which was 200 feet below the crest of a hill and approximately on the center line of amber airway 5 between Oakland and Sacramento.

"The fact that the aircraft struck approximately 3,000 feet below its assigned altitude of 4,000 feet, and at a point on the center line of amber airway 8 between Oakland and Sacramento, indicates that the flight was proceeding along its intended course, but not at the altitude assigned in the flight plan," the Board said. "Altimeter error cannot be considered as a contributing factor because an error in the instrument would not give an erroneous reading as great as 3,000 feet," the Board added.

"It appears, therefore, that the only reasonable explanation for the accident is that the pilot either did not attain or failed to maintain the assigned altitude, and attempted to fly by visual reference to the ground at a much lower altitude than that specified by his flight clearance," the Board continued. "As a result, the aircraft struck a hill obscured by low clouds. The fact that the aircraft struck in a steep climbing attitude indicates a last-minute attempt to gain altitude so as to avoid the hill."

Crash Follows Steep Turn.—The pilot's action in making a steep turn on final approach without maintaining adequate air speed, causing the aircraft to settle to the ground, was given by the Board as the probable cause of an accident at Detroit November 19, 1949, when a cargo plane crashed into a house. Both crew members were fatally injured. One occupant of the house was killed and another seriously injured.

The trip, operated by Meteor Air Transport, Inc., had departed Teterboro, N. J., on an IFR flight plan for Detroit, with a refueling stop scheduled at Dunkirk, N. Y. Icing conditions existed along the route but the Board said ice was not considered a contributing factor in the accident.

The Detroit tower first observed the flight a mile southeast of the airport at an altitude estimated at 700 feet above the ground. When the flight was almost over the field, it requested and was granted permission to make a left circle of the airport before landing.

East of the airport, the plane made a steep left turn. Although the aircraft straightened out from this turn, it continued to lose altitude until it struck the chimney of a house, approximately 3,200 feet east of the airport. It then struck and demolished a second house. The aircraft was partially destroyed in the fire which followed.

Evidence indicated, the Board said, that the captain, in flying around the airport, flew such a close-in approach pattern that it was necessary at the conclusion of the downwind leg to make a steep turn to align the aircraft with the runway in use. "It is possible," the Board added, "that because of reduced visibility due to the reported snow showers and smoke, the pilot shortened the radius of all turns to keep the airport in sight."

Recommendations Offered

(Continued from page 87)

Airport receive serious consideration. (Move has now been completed.)

6. That the operating procedures concerning certain jet operations from Hamilton Field be carefully restudied in order that hazard to other traffic operating either on or off airways may be removed.

7. That the CAA policy of issuing waivers to scheduled air carriers to allow straight-in approaches at uncontrolled airports in the sixth region under certain limitations be extended to all regions.

8. That simultaneous installation of high intensity runway and approach lights at the San Francisco Airport be expedited on the runways and that steps be taken to install satisfactory approach lights to runway 19.

9. That the regional air space subcommittee effect greater coordination with the users of airspace in the San Francisco area in proposed recommendations which fall within the terms of reference of that committee.

10. That the city of San Francisco's plans for providing an additional private flying airport in that area carefully consider (a) the need for an additional airport in that area, as well as the potential capacity at the present San Francisco Airport and (b) possible conflict between traffic to and from such an airport and other established airports in the area.

11. That the CAA program of educational gatherings of private pilots to discuss regulations, good flying practices, and similar subjects be intensified in the San Francisco area.

12. That aviation safety flight operations personnel more frequently visit all civil airports in the area to observe local flying with regard to adherence to regulations and good flying practices.

Helpful Publications

Publications listed below are on sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C. Orders must be accompanied by money order or check made payable to the Superintendent of Documents.

Flight Assistance

Airman's Guide and Flight Information Manual..... \$6 a year
(The Airman's Guide, published every 2 weeks, contains three sections: Directory of Airports, Radio Facility Data, and Notices to Airmen. The Flight Information Manual supplements the Airman's Guide and is issued semiannually.)

Airports

Airport Buildings..... 20 cents
(Problems of airport building design are discussed and several solutions suggested.)

Airport Design..... 30 cents
(Provides basic information on all phases of airport construction.)

Airport Drainage..... 30 cents
(Contains information helpful in developing an efficient and economical airport drainage system.)

Airport Turfing..... 25 cents
(A guide for airport owners, operators, builders, and others interested in the development of turf for airports. Describes various problems involved and presents methods used in establishing and maintaining a good turf.)

Legislative History of the Federal Airport Act..... \$4 a set
(Act (Two Volumes))
(Gives in detail congressional proceedings leading up to the adoption of the Federal Airport Act.)

Small Airports..... 15 cents
(Answers many problems confronting communities or individuals who want to build a small airport.)

Standard Specifications for Construction of Airports..... \$2
(Contains specification items for construction of airports and air parks. Covers clearing and grubbing, grading, drainage, paving, lighting, turfing, and incidental construction.)

Flight Training

Aircraft Powerplant Handbook..... \$1.25
(For students, mechanics, pilots, and engineers who have only superficial knowledge of aircraft powerplant fundamentals.)

Facts of Flight..... 50 cents
(A nontechnical manual, with chapters on airplane flight, stalls, spins, airplane structure, airplane engines, flying the plane, airport traffic, seaplanes, and safety in flight.)

Path of Flight..... 40 cents
(Practical information about basic navigation of aircraft, presented in brief form for the use of the private pilot.)

Realm of Flight..... 60 cents
(Presents practical information about the effect of atmospheric conditions upon flight.)

Commercial Pilot Examination Kit..... 30 cents
(Contains a summary of subject matter on which the examination is based, reference material for study, and four groups of examination questions similar to those used in the official certifying examination.)

Flight Instructor Oral Examination Guide-book..... 5 cents
(Prepared as an aid to the prospective applicant for a flight instructor rating.)

Miscellaneous

ANC Procedures for the Control of Air Traffic..... 40 cents
(Officially approved manual of air traffic control procedures adopted for use by civil and military air traffic control personnel. These procedures are required to be followed by all civil controllers holding certificates under Part 26 of the CAR.)

Industrial Flying..... 10 cents
(A brief description of various uses for the airplane in industrial flying.)

Student Pilot Guide..... 10 cents
(Presents information of particular importance to student pilots during the early stages of flight training.)

Terrain Flying..... 25 cents
(Describes the special problems and hazards encountered in flying over various kinds of terrain and proper precautions.)

The Air Fair..... 20 cents
(Gives detailed help in planning and operating an air fair.)

Safeguards Against Stalls Urged in Report to CAA

(Continued from page 85)

petent test pilots, and extended through 11 different maneuvers of the plane.

It was found that recovery from a stall by holding the nose of the plane on the horizon takes a longer time, but loses less altitude than by "dumping" the nose of the plane below the horizon to effect recovery. The "saving" in altitude in some cases exceeded 100 feet, and in certain maneuvers recovery can be made with loss of less than 50 feet. This matter of altitude loss becomes important when stalls occur near the ground.

Tests were run over a body of water near Boston in order to get accurate altimeter readings, and in relatively calm weather. Interviews with 40 flight instructors provided the basis for selecting the 11 maneuvers to be tested. Seven methods of recovering from a straight ahead, climbing power stall were evaluated, and 14 methods of recovering for a straight ahead, cruising power stall. Stalls in straight ahead flight with reduced power, in climbing turns, gliding turns, and steep turns and under varying conditions of turbulence also were among the conditions studied and covered in detail in the report.

"These four studies represent a major contribution to the safety of flying," Mr. Rentzel said in releasing the fourth report. "We have known for many years just what was our principal cause of fatal private flying accidents. Just as the first spin-proof light plane originated in a CAA development program in 1934, so now the CAA can assist the industry in eliminating or at least greatly curtailing the accidents due to stalls in all types of planes."

"If the findings of these reports are properly reflected in civil air regulations and in the design or equipment of our personal planes, I am certain we will have a better safety record. Here is an excellent field for Government-industry cooperation to advance the use of the personal airplane."

Experts of the Airman Division of the CAA Office of Aviation Safety aided the experimenters in their work and have supplied the experimental plane to safety agents in the CAA regions to demonstrate the practical applications of the findings.

Scheduled Air Carrier Operations

(Source: CAB Form 41)

Domestic: May 1950

Operator	Revenue miles	Revenue passengers	Revenue passenger-miles (000)	Passenger seat-miles (000)	Revenue passenger load factor (percent)	Ton-miles flown		
						Express	Freight	United States mail
Trunk Lines								
American Airlines	5,275,882	320,024	157,341	228,734	68.79	552,544	2,831,764	809,939
Brannif Airways	957,309	56,265	18,842	33,670	55.96	84,934	152,029	111,213
Capital Airlines	1,788,771	125,395	36,657	65,206	56.22	203,084	737,585	130,036
Chicago & Southern Air Lines	662,113	29,588	10,470	18,026	58.08	44,713	96,065	50,701
Colonial Airlines	301,046	14,989	3,834	9,207	41.64	7,373	7,402	6,791
Continental Air Lines	497,402	17,262	5,948	14,085	42.23	10,869	56,977	17,442
Delta Air Lines	1,182,379	56,203	22,037	38,246	57.62	85,680	226,612	101,639
Eastern Air Lines	4,566,784	217,904	94,617	164,139	57.64	350,493	1,258,722	418,256
Inland Air Lines	281,781	7,466	2,994	6,451	46.41	6,879	19,760	11,303
Mid-Continent Airlines	741,636	29,485	8,520	15,575	54.70	22,371	48,013	28,998
National Airlines	895,495	27,977	16,440	36,019	45.64	67,496	139,168	45,757
Northeast Airlines	323,545	26,031	4,916	9,815	50.09	12,307	28,452	8,183
Northwest Airlines	1,883,617	81,891	49,312	87,204	56.55	176,253	647,039	199,227
TransWorld Airlines	4,038,017	144,245	96,064	145,037	66.23	516,803	975,029	762,843
United Air Lines	4,765,119	234,005	125,910	184,078	68.40	675,168	2,240,692	966,487
Western Air Lines	707,205	30,392	11,609	25,129	46.20	52,297	83,482	72,193
Trunk total	28,866,101	1,419,122	665,511	1,080,621	61.59	2,869,264	9,548,791	3,741,008
Feeder Lines								
All American Airways	277,108	13,872	1,981	5,815	34.07	12,423	0	4,456
Bonanza Air Lines	77,529	1,605	378	1,553	24.34	192	719	503
Central Airlines	158,237	937	108	475	22.74	0	0	1,356
Challenger Airlines	102,101	1,685	496	2,042	24.29	1,968	5,323	2,554
Empire Air Lines	93,184	3,350	686	1,957	35.05	1,904	0	1,573
Helicopter Air Service	29,568	0	0	0	-	0	0	1,788
Los Angeles Airways	30,402	0	0	0	-	0	0	3,883
Mid-West Airlines	131,742	600	88	527	16.70	0	0	1,391
Monarch Air Lines	160,240	2,982	741	2,884	25.69	2,673	10,134	2,341
Piedmont Aviation	323,243	10,596	2,169	6,788	31.95	6,863	10,985	4,780
Pioneer Air Lines	316,213	11,024	2,961	7,600	38.96	4,289	12,564	7,758
Robinson Airlines	96,429	4,984	787	1,916	41.08	3,501	2,367	1,936
Southern Airways	148,415	3,091	517	3,120	16.57	4,414	0	3,854
Southwest Airways	204,106	10,391	1,903	4,286	44.40	4,603	14,608	4,224
Trans-Texas Airways	253,590	5,441	1,197	5,325	22.48	2,038	5,002	4,575
Turner Airlines	78,982	1,159	178	853	20.87	2,543	0	565
West Coast Airlines	126,429	6,810	984	2,655	37.06	1,824	0	605
Wiggins, E. W. Airways	27,662	225	19	111	17.12	0	0	149
Wisconsin-Central Airlines	177,139	4,258	679	1,489	45.60	4,188	0	3,386
Feeder total	2,812,319	83,010	15,872	49,396	32.13	53,423	61,702	51,677
Territorial Lines								
Caribbean-Atlantic Airlines	45,465	5,613	444	1,150	38.61	0	2,003	793
Hawaiian Airlines	229,698	24,369	3,113	5,052	61.62	10,582	37,451	5,530
Territorial total	275,163	29,982	3,557	6,202	57.35	10,582	39,454	6,323
Grand total	31,955,583	1,532,114	684,940	1,136,219	60.28	2,933,269	9,649,947	3,799,008

International and Overseas: January-May 1949

Operator	Revenue-miles, January-May		Revenue passengers, January-May		Revenue passenger-miles (000), January-May		Passenger seat-miles (000), January-May	Revenue passenger load factor (percent), January-May	Ton-miles flown						
	1950	1949	1950	1949	1950	1949			1950	1949	1950	1949	1950	1949	
American Airlines	948,458	934,873	35,291	31,991	27,208	26,780	45,699	42,825	59.54	62.53	4,627	0	530,712	527,324	
American Overseas Airlines	2,171,841	2,985,517	45,940	31,149	69,398	60,901	108,679	108,108	63.86	56.33	1,078,832	1,972,758	0	529,455	560,240
Brannif Airways	882,593	590,492	6,473	4,761	13,812	9,268	37,639	26,712	36.70	34.70	0	277,881	75,228	10,915	6,760
Chicago & Southern Air Lines	888,079	590,073	9,351	9,618	11,570	10,374	36,468	29,188	31.73	35.54	0	0	270,563	127,211	10,841
Colonial Airlines	169,698	313,848	4,768	6,133	3,803	4,841	7,539	13,786	50.44	35.12	0	0	27,445	41,443	1,155
Eastern Air Lines	306,899	314,080	6,818	5,605	7,090	6,256	15,219	15,988	46.59	39.13	0	0	180,398	223,987	25,489
National Airlines	323,889	254,113	33,814	21,533	9,086	6,294	18,017	12,335	50.43	51.03	94,304	121,171	0	0	5,640
Northwest Airlines	2,483,655	2,420,508	17,562	13,923	32,933	27,799	65,243	57,491	50.48	48.35	39,756	41,177	2,139,132	1,747,843	849,707
Pan American World Airways	4,698,965	5,446,194	55,357	48,207	117,417	109,489	175,050	168,641	67.08	64.92	3,065,245	3,558,192	0	0	971,657
Atlantic Division	4,698,965	5,446,194	55,357	48,207	117,417	109,489	175,050	168,641	67.08	64.92	3,065,245	3,558,192	0	0	971,657
Latin American Division	11,363,447	12,406,655	292,287	306,154	223,033	235,985	398,865	439,152	55.92	53.74	8,908,306	8,014,227	0	0	1,147,331
Alaska Operations	946,298	1,000,010	13,425	12,821	13,177	13,406	27,908	28,478	47.22	47.07	1,550,584	1,480,933	0	0	150,959
Pacific Operations	3,988,861	6,399,745	30,409	32,929	82,092	95,758	168,237	155,348	48.80	61.64	2,000,461	2,132,782	0	0	2,370,117
Pan American-Grace Airways	2,357,370	2,395,721	39,860	40,258	42,068	47,305	88,671	78,994	47.44	59.88	701,710	834,508	0	0	147,449
Trans World Airlines	4,748,298	5,143,318	41,392	35,181	110,637	102,060	170,856	171,470	64.75	59.52	0	2,786,166	2,203,827	0	1,073,534
United Air Lines	768,201	956,185	8,980	10,225	21,552	24,104	39,486	40,457	54.58	59.58	0	72,580	118,471	0	241,747
Uruba, Medellin & Central Airways	41,520	42,844	1,062	1,351	350	448	722	685	48.48	65.40	12,404	17,307	0	0	0
Total	37,088,072	42,194,176	642,789	611,839	785,226	781,068	1,404,298	1,389,658	55.92	56.21	17,456,229	21,031,801	5,748,429	2,743,036	7,585,402
Index (1949 = 100)	87.90	100.00	105.06	100.00	100.53	100.00	101.05	100.00	99.48	100.00	83.00	100.00	209.56	100.00	98.27
													100.00	100.00	128.95
															100.00

Survey for March 1949 Gives Data on Traffic Of U. S. Air Carriers

The Civil Aeronautics Board has announced the issuance of the Airline Traffic Survey for the month of March 1949, the sixth in the semi-annual postwar series of surveys. It includes detailed traffic data covering scheduled domestic, territorial, and international services of United States carriers.

International traffic reported by United States carriers for March 1949 totaled 135,251 passengers and 201,966,958 passenger-miles. New York City accounted for 52 percent of all international passenger-miles generated within the country. Together, New York City, San Francisco, Miami, Los Angeles, and Chicago accounted for 80 percent of international travel.

The volume of traffic for domestic certificated air carriers in March 1949 shows increases over that for March 1948 as follows (including intraterritorial operations):

Volume of March Traffic

Number of—	March 1948	March 1949	Percent of increase
Passenger originations and destinations....	863,888	1,045,046	21.0
Passenger-miles....	462,428,536	558,281,584	20.7
Station-to-station combinations in air passenger traffic....	13,567	15,532	14.5
Stations receiving air service....	393	430	9.4

Among the 430 domestic air stations served during March 1949, New York, Chicago, Washington, Los Angeles, and Boston ranked, respectively, 1-2-3-4-5, in number of passengers to and from those cities. In passenger-miles the top five rankings, in order, placed New York, Chicago, Los Angeles, Miami, and San Francisco. These top-ranking cities accounted for 31.0 percent of all domestic passengers, and 40.4 percent of total passenger-miles. (New York totals include Newark as a copoint, and San Francisco totals include Oakland.)

In domestic station combinations for all passengers ticketed, the top 100 pairs of stations accounted for nearly one-half of the total traffic for the 15,532 station combinations reported. Of all pairs of stations, by passenger totals New York-Boston, New York-Washington, New York-Chicago, Los Angeles-San Francisco, and New York-Miami ranked in that order 1-2-3-4-5; by passenger-miles in the top five places, the order was 3-4-1-2-5; New York-Miami, New York-Los Angeles, New York-Chicago, New York-San Francisco, and Chicago-Miami.

Domestic Stations Listed.—Base station summary tables in volume 1 list each of the 430 domestic stations receiving air service during March 1949 and show total traffic data by station-passengers originated or terminated, passenger-miles, relative rankings by passengers and passenger-miles, average length of passenger flights and number of stations with which passengers were exchanged. Inter-station summary tables in volume 1 list in rank order, by passengers and passenger-miles, the 100 top-ranking pairs of domestic stations in the inter-change of traffic. Summary data for international traffic, by station, are shown in volume 5.

Assembled by the Civil Aeronautics Board's analyses division, the survey report is based on traffic data furnished by the United States domestic, territorial, and international air carriers in operation during

Scheduled Air Carrier Operations

(Continued on page 93)

Domestic: January-May 1950, 1949

Operator	Revenue miles, January-May		Revenue passengers, January-May		Revenue passenger-miles (000), January-May		Passenger seat-miles (000), January-May	
	1950	1949	1950	1949	1950	1949	1950	1949
<i>Trunk Lines</i>								
American Airlines.....	21,822,566	21,780,309	1,174,669	1,219,435	584,268	577,324	934,367	891,678
Braniff Airways.....	4,601,456	4,564,471	243,661	229,101	81,458	76,070	159,306	146,939
Capital Airlines.....	7,834,488	7,877,977	472,879	427,101	139,025	124,276	282,325	262,554
Chicago & Southern Air Lines.....	2,983,398	2,983,059	121,164	118,616	43,642	42,621	81,960	77,800
Colonial Airlines.....	1,191,894	1,431,745	61,758	65,033	16,309	17,477	33,636	30,018
Continental Air Lines.....	2,315,725	2,341,946	73,829	66,951	25,591	23,793	65,286	62,757
Delta Air Lines.....	6,044,955	5,315,745	252,260	218,177	117,465	92,659	203,323	154,864
Eastern Air Lines.....	22,759,690	22,419,734	1,023,710	916,793	521,476	449,709	840,505	750,345
Inland Air Lines.....	1,185,553	1,016,417	32,115	30,740	12,157	10,819	23,715	20,051
Mid-Continent Airlines.....	3,441,685	3,307,516	132,239	130,276	38,491	38,825	72,276	69,458
National Airlines.....	5,068,074	3,958,880	171,852	130,136	112,155	76,322	200,878	158,173
Northeast Airlines.....	1,375,758	1,418,767	111,888	107,973	20,860	20,346	43,403	44,404
Northwest Airlines.....	8,247,190	6,888,625	292,751	244,473	172,849	126,999	350,052	249,889
Trans World Airlines (May 17, 1950).....	17,767,731	20,494,778	543,099	520,456	364,778	344,949	626,907	626,311
United Air Lines.....	21,032,692	20,061,898	836,381	784,367	472,100	455,662	786,722	707,986
Western Air Lines.....	3,043,233	2,411,738	129,116	108,284	48,365	40,191	110,988	81,695
Trunk total.....	130,716,085	128,273,849	5,673,401	5,317,912	2,770,989	2,518,042	4,813,649	4,334,922
Index (1949=100).....	101.90	100.00	106.68	100.00	110.05	100.00	111.04	100.00
<i>Feeder Lines</i>								
All American Airways.....	1,153,390	886,238	44,526	9,536	6,269	1,160	24,217	7,419
Bonanza Air Lines.....	368,264	—	6,545	—	1,618	—	7,178	—
Central Airlines.....	714,512	—	3,037	—	351	—	2,144	—
Challenger Airlines.....	493,926	677,195	7,644	10,643	2,233	2,912	9,878	13,765
Empire Air Lines.....	440,199	425,984	15,473	12,730	3,044	2,734	9,231	8,946
Florida Airways (ceased operation Mar. 28, 1949).....	—	193,120	—	3,026	—	409	—	1,542
Helicopter Air Service.....	130,686	—	0	—	0	—	0	—
Los Angeles Airways.....	139,876	141,875	0	0	0	0	0	0
Mid-West Airlines.....	593,445	—	2,433	—	354	—	2,372	—
Monarch Air Lines.....	743,808	683,681	11,466	9,727	2,901	2,475	13,389	12,306
Piedmont Aviation.....	1,371,731	1,098,633	40,565	27,151	8,329	5,889	28,810	23,072
Pioneer Air Lines.....	1,532,732	1,538,298	47,545	39,241	12,810	10,634	36,888	37,102
Robinson Airlines.....	434,113	324,176	18,982	14,858	2,976	2,224	8,392	6,556
Southern Airways.....	711,461	—	11,098	—	1,912	—	14,903	—
Trans-Texas Airways.....	1,220,780	1,058,413	20,966	14,311	4,743	3,531	25,635	22,227
Turner Airlines.....	294,634	—	3,290	—	509	—	3,298	—
West Coast Airlines.....	485,458	489,168	22,330	22,970	3,149	2,961	10,195	10,272
Wiggins, E. W. Airways.....	126,319	—	830	—	73	—	500	—
Wisconsin-Central Airlines.....	801,220	541,765	16,423	8,592	2,522	1,237	6,525	4,548
Feeder total.....	12,704,210	9,046,304	312,703	214,304	61,006	43,818	223,456	168,498
Index (1949=100).....	140.44	100.00	145.92	100.00	139.23	100.00	132.62	100.00
<i>Territorial Lines</i>								
Caribbean-Atlantic Airlines.....	234,938	265,740	32,035	39,263	2,592	2,863	5,823	6,548
Hawaiian Airlines.....	1,120,068	1,118,720	123,436	123,966	15,965	17,141	24,725	24,962
Territorial total.....	1,355,006	1,384,460	155,471	163,229	18,557	20,004	30,548	31,510
Index (1949=100).....	97.87	100.00	95.27	100.00	92.77	100.00	96.95	100.00
Grand total.....	144,775,301	138,704,613	6,141,575	5,695,445	2,850,552	2,581,864	5,067,653	4,534,930
Index (1949=100).....	104.38	100.00	107.83	100.00	110.41	100.00	111.75	100.00

Domestic: Passenger-miles flown

(Total revenue and nonrevenue, in thousands)

	January	February	March	April	May	Total
Trunk.....	488,983	488,409	574,493	645,184	691,949	2,889,018
Feeder.....	10,266	10,425	12,551	15,517	17,191	65,950
Territorial.....	3,547	3,497	3,841	4,351	3,610	18,846
Total.....	502,796	502,331	590,885	665,052	712,750	2,973,814

ing March 1949, and by the Air Transport Board of Canada. The report comprises five volumes in two divisions—domestic and international; the basic material for each division is subclassified, as in the past, into two subdivisions—"Origination-Destination Airline Traffic Survey of Revenue Passengers," and "Station-to-Station Airline Traffic Survey of Revenue Traffic by Classes." The former includes statistics of United States-Canada transborder traffic via both United States and Canadian air carriers; data were furnished by scheduled carriers of both countries under a cooperative arrangement between the Civil Aeronautics Board and the Air Transport Board of Canada.

Volumes 1-3 comprise the domestic and territorial origination-destination airline traffic survey (volume 3 includes the transborder section); volume 4, the domestic and territorial station-to-station traffic survey; volume 5, all data covering international traffic; origination-destination of passengers, and station-to-station flow of all classes of traffic.

Volume 1 contains summary comments covering domestic and territorial traffic; technical notes applicable to data in volumes 1-3; 5 illustrative maps; 5 summary tables; and 2 station and carrier coding and decoding sheets for use with volumes 2-3. Volumes 2 and 3 contain the detail, by station, of passenger Canada.

(Continued on next page)

Scheduled Air Carrier Operations

(Continued from page 92)

Domestic: January-May 1950, 1949

Operator	Revenue passenger load factor (percent), January-May	Ton-miles flown							
		Express, January-May		Freight, January-May		United States mail, January-May			
		1950	1949	1950	1949	1950	1949	1950	1949
Trunk Lines									
American Airlines.....	62.53	64.75	2,306,507	1,970,261	11,910,280	12,042,291	3,691,179	3,774,239	
Braniff Airways.....	51.13	51.77	393,262	303,412	627,567	397,063	508,103	433,832	
Capital Airlines.....	49.24	47.33	667,672	605,602	3,186,219	2,556,748	566,250	414,555	
Chicago & Southern Air Lines.....	53.25	54.78	209,831	202,607	333,684	210,937	231,167	222,689	
Colonial Airlines.....	48.49	58.22	28,976	19,308	36,910	41,687	35,509	39,101	
Continental Air Lines.....	39.20	37.91	39,551	37,663	180,453	141,444	81,782	85,810	
Delta Air Lines.....	57.77	59.83	356,139	271,316	1,037,746	640,004	482,303	386,769	
Eastern Air Lines.....	62.04	59.93	1,647,525	1,400,673	5,279,274	3,589,528	2,031,615	2,144,415	
Inland Air Lines.....	51.26	53.96	22,242	26,311	53,060	48,435	43,437	48,285	
Mid-Continent Airlines.....	53.26	55.90	89,843	72,582	188,250	134,230	128,794	127,573	
National Airlines.....	55.83	48.25	321,880	207,368	961,121	469,951	291,186	261,963	
Northeast Airlines.....	48.06	45.82	63,502	28,639	88,715	85,652	44,997	37,995	
Northwest Airlines.....	49.38	50.82	681,077	594,736	2,530,734	1,787,681	1,086,803	981,083	
Trans World Airlines (May 17, 1950).....	58.37	55.08	2,080,398	1,806,621	4,696,216	4,753,666	3,424,957	3,842,960	
United Air Lines.....	60.01	64.36	3,128,766	2,343,538	10,208,947	9,050,698	4,514,519	4,055,953	
Western Air Lines.....	43.58	49.20	189,621	95,111	276,817	193,415	276,271	148,816	
Trunk total.....	57.57	58.09	12,426,798	9,987,748	41,589,993	36,143,430	17,438,872	17,006,088	
Index (1949=100).....	99.10	100.00	124.42	100.00	115.07	100.00	102.54	100.00	
Feeder Lines									
All American Airways.....	25.80	15.64	39,267	15,915	0	0	16,350	19,262	
Bonanza Air Lines.....	22.54	-	562	-	3,894	-	2,038	-	
Central Airlines.....	16.37	-	0	-	0	-	6,499	-	
Challenger Airlines.....	22.61	21.16	9,058	16,731	18,064	33,661	11,377	17,031	
Empire Air Lines.....	32.98	30.56	5,898	5,236	0	0	7,259	8,031	
Florida Airways (ceased operation Mar. 28, 1949).....	-	26.52	-	660	-	0	-	1,812	
Helicopter Air Service.....	-	-	-	-	-	-	7,594	-	
Los Angeles Airways.....	-	-	0	0	0	0	17,405	18,178	
Mid-West Airlines.....	14.92	-	-	-	0	-	6,891	-	
Monarch Air Lines.....	21.67	20.11	9,693	7,067	39,148	29,142	10,137	9,807	
Piedmont Aviation.....	28.91	25.52	24,063	11,970	37,365	18,424	18,409	12,707	
Pioneer Air Lines.....	34.73	28.66	17,229	23,664	48,498	23,664	39,504	34,896	
Robinson Airlines.....	35.46	33.92	13,406	0	12,716	6,680	8,680	6,431	
Southern Airways.....	12.83	-	15,352	-	0	-	16,692	-	
Southwest Airways.....	36.24	36.89	16,522	12,604	54,799	41,877	18,833	20,288	
Trans-Texas Airways.....	18.50	15.89	11,054	7,023	22,207	4,084	21,557	26,229	
Turner Airlines.....	15.43	-	5,934	-	0	-	1,886	-	
West Coast Airlines.....	30.89	28.83	4,890	3,827	0	0	3,308	3,957	
Wiggins, E. W. Airways.....	14.60	-	0	-	0	-	645	-	
Wisconsin-Central Airlines.....	38.65	27.20	15,760	6,284	0	0	13,215	6,943	
Feeder total.....	27.30	26.01	188,686	97,687	236,691	157,532	228,279	185,572	
Index (1949=100).....	104.96	100.00	193.15	100.00	150.25	100.00	123.01	100.00	
Territorial Lines									
Caribbean-Atlantic Airlines.....	44.51	43.72	0	11,378	12,801	4,498	3,516	-	
Hawaiian Airlines.....	64.57	68.67	50,829	56,544	169,558	182,904	22,744	22,215	
Territorial total.....	60.75	63.48	50,829	56,544	180,936	195,705	27,242	25,731	
Index (1949=100).....	95.70	100.00	89,89	100.00	92,45	100.00	105.87	100.00	
Grand total.....	56.25	56.93	12,666,313	10,141,979	42,007,620	36,496,667	17,694,373	17,217,391	
Index (1949=100).....	98.81	100.00	124.89	100.00	115.10	100.00	102.77	100.00	

International and Overseas: May 1950

Operator	Revenue miles	Revenue passengers	Revenue passenger miles (000)	Passenger seat-miles (000)	Revenue passenger load factor (percent)	Ton-miles flown			
						Express	Freight	United States mail	Parcel post
American Airlines.....	183,649	6,690	4,772	9,417	50.67	1,095	111,078	10,095	0
American Overseas Airlines.....	524,370	11,052	17,608	27,914	63.08	235,190	0	134,564	29,891
Braniff Airways.....	197,445	1,391	3,164	8,411	37.62	0	53,914	2,697	0
Chicago & Southern Air Lines.....	175,253	1,658	2,087	7,133	29.26	0	45,244	2,161	206
Colonial Airlines.....	55,458	1,568	1,314	2,458	53.46	0	14,587	356	62
Eastern Air Lines.....	60,419	1,199	1,247	2,995	41.64	0	29,682	7,055	754
National Airlines.....	51,816	5,077	1,434	3,354	42.75	16,767	0	991	0
Northwest Airlines.....	569,229	4,958	8,643	17,106	50.53	15,590	505,536	189,273	0
Pan American World Airways:									
Atlantic Division.....	1,013,085	12,980	27,767	38,623	71.89	705,244	0	213,648	54,536
Latin American Division.....	2,262,825	48,635	42,603	80,941	52.63	1,638,995	0	245,370	0
Alaska Operations.....	216,706	3,472	3,147	6,500	48.42	387,262	0	33,560	0
Pacific Operations.....	834,286	6,026	18,860	35,180	53.61	439,505	0	623,699	0
Pan-American-Grace Airways.....	482,296	7,922	8,470	18,440	45.93	127,604	0	28,896	2,100
Trans World Airlines.....	1,124,672	10,184	26,321	46,827	56.21	0	462,923	201,880	35,913
United Air Lines.....	158,420	2,045	4,908	8,378	58.58	0	25,731	50,389	0
Urala, Medellin & Central Airways.....	8,528	202	66	146	45.21	2,090	0	0	0
Total.....	7,918,457	125,059	172,411	313,823	54.94	3,569,342	1,248,695	1,744,634	123,462

CAA and CAB Releases

Copies of CAA releases may be obtained from the CAA Office of Aviation Information. CAB releases are obtainable from the Public Information Section of the Board.

Administration

CAA Issues Book of Plans for an Air Fair—(June 22).

Please Talk to us, CAA Communicators Urge Pilots—(July 7).

CAA Announces Contract for Aircraft Direction Finders—(July 12).

CAA Considering Recommendations Made by Airports Advisory Committee—(July 21).

CAA Lists Firms Doing Aviation "Odd Jobs"—(July 28).

Board

CAB Grants Foreign Air Carrier Permit to El-Al Israel National Airlines—(CAB 50-38), June 22.

March 1949 Airline Traffic Survey—(CAB 50-39), June 27.

Board Sets Hearing on Northwest Airlines Fatal Accident Near Benton Harbor, Michigan—(CAB 50-40), July 12.

Board Announces Decision in North Atlantic Route Transfer Case—(CAB 50-41), July 17.

Airport Act Regulations

Available in New Booklet

Regulations adopted by the Administrator of Civil Aeronautics governing participation in the Federal aid airport program authorized by the Federal Airport Act are now available in a publication on sale for 45 cents a copy by the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

These regulations, quoted in full, are divided into three parts. Also reprinted in the publication are copies of forms used under the regulations and the text of the Federal Airport Act, with amendments up to date of the publication.

Traffic Survey Issued

(Continued from page 92)

originations-destinations and routings in domestic, territorial, and United States-Canada transborder traffic.

Volume 4 contains comments and technical notes; 6 illustrative maps; 4 tables of selected route data in aggregate; domestic and territorial station-to-station detail by carriers and operating segments, showing average daily traffic flow by number of passengers, pounds of mail, express and freight, revenue capacity available in seats and total tons, load factors (percentages) for revenue passengers and total tonnage loads.

Volume 5, comprising the complete report of international traffic, contains summary comments and technical notes; a route map; 7 summary tables, 2 coding and decoding sheets for stations and carriers; and the detail by carrier and station of passengers origination-destination and station-to-station traffic data. A 5-page "Summary of Passenger Traffic Between Countries" by geographical area, is also included in volume 5.

The Airline Traffic Survey for March 1949 may be purchased from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., by the set or by the volume. The volumes are priced as follows:

Volume 1, \$1; volume 2, \$2.25; volume 3, \$2.25; volume 4, \$1.75; volume 5, \$1.50; complete set, \$8.75.

Regulations of The Administrator

(Through July 31, 1950)

Note: Regulations of the Administrator marked with an asterisk (*) on the list given below may be obtained from the Superintendent of Documents, United States Government Printing Office, Washington 25, D. C., at the prices indicated. Remit check or money order, made payable to the Superintendent of Documents, directly to the Government Printing Office. Copies of amendments may be obtained free of charge from the Office of Aviation Information, CAA, Washington 25, D. C., or may be found in the Federal Register for the dates indicated in parentheses. Copies of the Federal Register are obtainable from the Superintendent of Documents.

Part 405—Procedure of the Civil Aeronautics Administration. (Published in the Federal Register, part II, section 2, July 16, 1949, 20^c.)

*Part 406—Rules of Practice Governing Proceedings to Alter, Amend, or Modify Certificates. (5¢.)
 *Part 407—Seizure of Aircraft. (5¢.)
 *Part 450—Inter-American Aviation Training Grants. (5¢.)
 *Part 501—Aircraft Registration Certificates. (5¢.)
 *Part 502—Dealers' Aircraft Registration Certificates. (5¢.)
 *Part 503—Recordation of Aircraft Ownership. (5¢.)
 *Part 504—Recordation of Encumbrances Against Specifically Identified Aircraft Engines. (5¢.)
 *Part 505—Recordation of Encumbrances Against Aircraft Engines, Propellers, Appliances, or Spare Parts. (5¢.)
 *Part 550—Federal Aid to Public Agencies for Development of Public Airports. (10¢.)
 (Amendments 1-6 available from CAA.)
 Amendment 8. (June 16, 1950.)
 Amendment 9. (July 4, 1950.)
 *Part 555—Acquisition of Government-owned Lands for Public Airport Purposes. (5¢.)
 *Part 560—Reimbursement for Damage to Public Airports by Federal Agencies. (10¢.)
 (Amendment 1 available from CAA.)
 *Part 570—Rules of Washington National Airport. (5¢.)
 (Amendment 1 available from CAA.)
 *Part 575—Federal Civil Airports on Canton and Wake Islands. (5¢.)
 *Part 600—Designation of Civil Airways (including amendments 1 through 18). (15¢.)
 (Amendments 19-28 available from CAA.)
 Amendment 29. (June 30, 1950.)
 Amendment 30. (July 20, 1950.)
 Amendment 31. (July 25, 1950.)
 *Part 601—Designation of Control Areas, Control Zones and Reporting Points (including amendments 1 through 22). (15¢.)
 (Amendments 23-32 available from CAA.)
 Amendment 33. (June 30, 1950.)
 Amendment 34. (July 20, 1950.)
 *Part 625—Notice of Construction or Alteration. (5¢.)
 Part 635—Reproduction and Dissemination of Current Examination Materials. (Available without charge on request to the Office of Aviation Information, CAA.)

Civil Aircraft Shipments Totaled 377 During May

Civil aircraft shipments in May 1950 totaled 377 aircraft, weighing 494,200 airframe pounds, and valued at \$12,516,000, according to report issued jointly by the Civil Aeronautics Administration and the Bureau of the Census, Department of Commerce. Compared with the same month of 1949, this output represented a decline of 20 percent in number of aircraft but an increase of 9 percent in airframe weight and 26 percent in dollar value.

Detailed figures for May 1950 civil aircraft shipments follow:

Civil Aircraft Shipments

	1950		1949
	May	April	May
Number (total).....	377	329	474
Number by type:			
Personal.....	370	322	461
Transport.....	7	7	13
Number by place:			
1- and 2-place.....	114	106	147
3- to 5-place.....	256	216	314
Over 5-place.....	7	7	13
Airframe weight (thousand pounds):			
Personal.....	270.1	231.8	304.4
Transport.....	224.1	190.5	147.0
Value (thousand dollars).....	\$12,516	\$10,402	\$9,927
Complete aircraft.....	7,809	6,389	5,194
Parts.....	2,324	2,254	3,134
Other products.....	2,383	1,759	1,594

Air Regulations . on August 1, 1950

TITLE	No.	Price	Date	Number of Amendments	Applicable Special Regulations
Aircraft					
Airworthiness Certificates.....	1	\$0.05	5/10/49		
Type and Production Certificates.....	2	.05	8/1/49	1	SR-342
Airplane Airworthiness; Normal Utility, Aerobatic, and Restricted Purpose Categories.....	3	.15	11/1/49	2	SR-342
Airplane Airworthiness.....	4a	.20	4/7/50	2	SR-342, 344
Airplane Airworthiness; Transport Categories.....	4b	.20	9/1/49	2	SR-342
Rotorcraft Airworthiness.....	6	.05	3/1/50		
Aircraft Airworthiness; Limited Category.....	9	.05	11/1/49		
Aircraft Engine Airworthiness.....	13	.05	8/1/49		SR-342
Aircraft Propeller Airworthiness.....	14	.05	11/1/49	1	SR-342
Aircraft Equipment Airworthiness.....	15	.05	11/1/49	2	SR-342
Maintenance, Repair, and Alteration of Certificated Aircraft and of Aircraft Engines, Propellers, and Instruments.....	16	.05	2/13/41		
	18	.05	8/15/49		
Airmen					
Pilot Certificates.....	20	.05	8/1/49	3	
Airline Transport Pilot Rating.....	21	.05	8/15/49	1	
Lighter-than-air Pilot Certificates.....	22	.05	11/1/49		
Mechanic Certificates.....	24	.05	9/1/49		
Parachute Technician Certificates.....	25	.05	11/1/49		SR-348
Air-traffic Control-tower Operator Certificates.....	26	.05	11/1/49		
Aircraft Dispatcher Certificates.....	27	.05	11/1/49		
Physical Standards for Airmen.....	29	.05	10/1/49	1	
Flight Radio Operator Certificates.....	33	.05	2/15/50	1	
Flight Navigator Certificates.....	34	.05	11/1/49		SR-352
Flight Engineer Certificates.....	35	.05	11/1/49		
Operation Rules					
Air Carrier Operating Certification.....	40	.05	9/1/49		SR-335, 346, 349, 351
Certification and Operation Rules for Scheduled Air Carrier Operations Outside the Continental Limits of the United States. Irregular Air Carrier and Off-Route Rules					
	41	.05	11/15/49	2	SR-349
	42	.10	6/1/49	5	SR-337, 349, 350
General Operation Rules. Foreign Air Carrier Regulations. Commercial Operator Certification and Operation Rules					
	43	.05	8/1/49	2	
	44	.05	9/1/49		
	45	.05	11/15/49	1	SR-337, 343, 349
Operation of Moored Balloons. Transportation of Explosives and Other Dangerous Articles					
	48	.05	9/1/49		
	49	.10	7/20/49		
Air Agencies					
Airmen Agency Certificates.....	50	.05	10/1/49	2	SR-336
Ground Instructor Rating.....	51	.05	10/10/49		
Repair Station Rating.....	52	.05	10/15/49		
Mechanic School Rating.....	53	.05	10/15/49		
Parachute Loft Certificates and Ratings.....	54	.05	10/15/49		
Air Navigation					
Air Traffic Rules.....	60	.10	8/1/49		
Scheduled Air Carrier Rules.....	61	.10	9/1/49	2	SR-336, 346, 349, 350
Notice and Reports of Aircraft Accidents and Missing Aircraft					
	62	.05	5/1/49		

¹ Certain aircraft may comply with the provisions of this part or part 4a.

NOTE: Civil Air Regulations are on sale at the prices indicated by the Superintendent of Documents, Government Printing Office, Washington, 25, D. C. Remittances should be by check or money order, payable to the Superintendent. Amendments and special regulations may be obtained from the Publications Section, Civil Aeronautics Board, Washington 25, D. C.

CAA Manuals and Supplements . on August 1, 1950

TITLE	No.	Price	Date	No. of Supplements	Amending Releases
Production Certificates. Airplane Airworthiness; Normal Utility, Aerobic, and Restricted Purpose Categories. Airplane Airworthiness					
	02	\$0.10	8/1/46		
	3	Free		6	
	04	.75	7/1/44		Nos. 193, 202
Airplane Airworthiness. Airplane Airworthiness; Transport Categories. Aircraft Propeller Airworthiness. Aircraft Equipment Airworthiness					
	4a	Free		1	
	4b	Free		2	
	14	.15	5/1/46		
	15				(Being revised.)
	16	Free	2/13/41		No. 272.
Aircraft Radio Equipment Airworthiness. Maintenance, Repair, and Alteration of Certificated Aircraft Engines, Propellers, and Instruments. Pilot Certificates. Air-Traffic Control-tower Operator Certificates. Aircraft Dispatcher Certificates. Flight Radio Operator Certificates. Flight Navigator Certificates. Flight Engineer Certificates. Air Carrier Operating Certification. Certification and Operation Rules for Scheduled Air Carrier Operations Outside the Continental Limits of the United States. Irregular Air Carrier Certification and Operation Rules. General Operation Rules. Airmen Agency Certificates. Ground Instructor Rating. Repair Station Rating. Mechanic School Rating. Parachute Loft Certificates and Ratings. Instrument Approach Procedure. Scheduled Air Carrier Rules.					
	18	1.25	8/1/49		
	20	Free	6/15/50		
	26	Free		1	
	27	Free		1	
	33	Free	6/16/50		
	34	Free		1	
	35	Free		1	
	40	Free		1	
	41	Free		6	
	42	1.00	9/1/49	2	
	43	Free		4	
	50	Free		4	No. 254.
	51	Free		1	
	52	Free		1	
	53	Free	5/-40		
	54	.15	7/1/48		
	60	Free		1	
	61	Free		5	

NOTE: Manuals for which a price is listed may be obtained from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Remittances should be by check or money order, payable to the Superintendent. Items marked "free" may be obtained from the CAA Office of Aviation Information, Department of Commerce, Washington 25, D. C.

Acquisition of American Overseas By Pan Am Gets Approval of Board

The Civil Aeronautics Board on July 17 announced a decision in the *North Atlantic Route Transfer* case approving the proposed acquisition of American Overseas Airlines, Inc., by Pan American World Airways, Inc., on the basis of the establishment of a new and rearranged European air route pattern intended to provide equal traffic opportunities for the two remaining United States air carriers, Pan American and Trans World Airlines, Inc. The Board's decision was directed by President Truman and approved by him on July 11, 1950.

The opinion and order rearranging the air route pattern amends the certificate of TWA by authorizing that carrier to serve London and Frankfurt, and amends the certificate of Pan American to permit that carrier to serve Paris and Rome.

Approval Withheld.—The Board's recommended decision, submitted to the President on June 1, 1950, had denied approval of the proposed merger of AOA and Pan American, by a vote of 3 to 2. The President withheld his approval of the Board's decision, however, and subsequently directed the Board to prepare a new order.

In directing the Board's decision, the President acted in accordance with a power granted to him by Congress in the Civil Aeronautics Act of 1938 as amended. That act empowers him to make the final decision in all foreign and overseas air route cases, a provision made necessary by the vital importance of international air transportation to national security and foreign relations. It is a power which the Supreme Court has defined as not "... a mere right of veto" but a power of "... denial, transfer, amendment, cancellation, or suspension as well. Thus, Presidential control is not limited to a negative but is a positive and detailed control over the Board's decisions unparalleled in the history of American administrative bodies" (United States Supreme Court in *CAB v. Waterman Steamship Corp.*, 333 U. S. 103 (1948)).

Letter Gives Directive.—The President's directive to the Board was contained in a letter to CAB Acting Chairman Oswald Ryan, in which the President advised the Board as follows:

"My objective is to accomplish a route pattern in which our nation may have the benefit of competition to the principal traffic points in Europe, and to avoid a monopoly on the part of either of the United States carriers.

"It is apparent that, as traffic points, London, Paris, Rome, and for the time being, Frankfurt are the leading European cities. Therefore I desire that both remaining carriers be authorized to serve each of these points. In the case of Rome, which one of the carriers now serves both on its Shannon and its Lisbon routes, the other carrier should be similarly authorized. As to Frankfurt which is a principal air traffic point during and principally because of the American occupation of Germany, the TWA is to serve Frankfurt until the Board shall find that such service is no longer required in the interests of the American occupation of Germany.

"This adjustment should result in the fullest accomplishment of the broad national objectives which, especially at this critical time, should govern the development of United States air transportation and will provide for vigorous competitive growth by our air lines.

"It is most important that this matter be disposed of in the present proceeding without further delay in order that the carriers concerned may immediately go forward with plans for their needed further development.

"Therefore, I have decided to approve the sale of American Overseas Airlines with the route adjustments set forth above. Please submit an order at once."

Civil Aviation Inventory Suggested by Committee

(Continued from page 85)

ties and personnel in being. We estimate a total time of 30 days would be required for us to function on this critical matter and a full meeting of the committee also would be required at which this subject would be considered exclusively."

The Administrator accepted the committee's offer and asked it to provide him with all available information at the earliest possible moment. The committee also invited all segments of civil aviation to offer their suggestion on the full utilization of our civilian aviation resources.

The committee proposed clarification of Civil Air Regulations which would free private pilots of certain restrictions in flying in the conduct of business. Under the new rules being considered by the Civil Aeronautics Administration and the Civil Aeronautics Board which found general approval by the committee, the pilot holding a private certificate, in addition to all the privileges now accorded in the law, may demonstrate airplanes for sale, whether they be his own or those belonging to his employer. If a private pilot is employed to sell airplanes, he would be required to show that he has the equivalent aeronautical experience of a commercial pilot. The committee agreed with the CAA representatives that Government owes a proper measure of protection to the public in allowing the private pilot to carry passengers, and that the regulations should reflect this concern.

The committee commended the CAA on its program of installing automatic direction-finding radar equipment at communications stations for traffic control and for fast action in locating and aiding pilots in difficulty. They reviewed numerous cases in which CAA communicators, even through the present rather cumbersome methods and equipment, had guided lost pilots safely to nearby airports.

The committee recommended that the CAA give careful study to each case where abandonment of an intermediate field or rotating beacon is being considered to see that all interests of flying safety are protected. Only after the CAA has proved that loss of the facility will not affect safety, the committee said, should it be abandoned. Transferring the facility to a local agency to operate, or continuing it in operation by the CAA are the alternatives, the committee said.

Airport Drainage Information Given

"Airport Drainage," a CAA publication which gives information helpful in developing an efficient and economical airport drainage system, is on sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C., for 30 cents.

WNA Airline Passenger

Traffic Hits New Peak

Airline passenger traffic at Washington National Airport reached a new peak during June 1950 when 152,451 passengers passed through its gates. This was a gain of 10,015 passengers over the previous month and was 8,747 more passengers than were recorded in the former high month of June 1949.

Washington National Airport Passengers
January-June 1946-50

	1946	1947	1948	1949	1950
Passengers arriving.....	256,535	259,559	278,406	337,535	351,419
Passengers departing.....	280,947	287,401	279,062	344,179	355,672
Total.....	537,482	546,960	557,468	681,714	707,091

Nautical Mile and Knot To Be Used by CAA Beginning July 1, 1952

All Civil Aeronautics Administration facilities and services on July 1, 1952, will adopt knots and nautical miles as a single military-civil standard of measurement for speed and distance used in air navigation. D. W. Rentzel, Administrator of Civil Aeronautics, informed members of the Aviation Development Advisory Committee at a meeting in Washington last month.

The Air Coordinating Committee, which operates under executive authority of the President and has representatives from all Government agencies interested in aeronautical matters, as well as industry participation, on April 6 adopted knots and nautical miles for both domestic and international operations. The ACC gave the agencies until 1954 to make the changes, but suggested an earlier date if possible.

The Administrator issued a technical standard order, TSO-G4a, dated July 1, 1950, setting out dimensional units to be used in air-ground communications. After June 30, 1952, the order directed, the CAA will use nautical miles and tenths for distance, feet for altitude, elevations, and dimensions on aerodrome and short distances, knots for horizontal speed, knots for wind speed, and feet for cloud height.

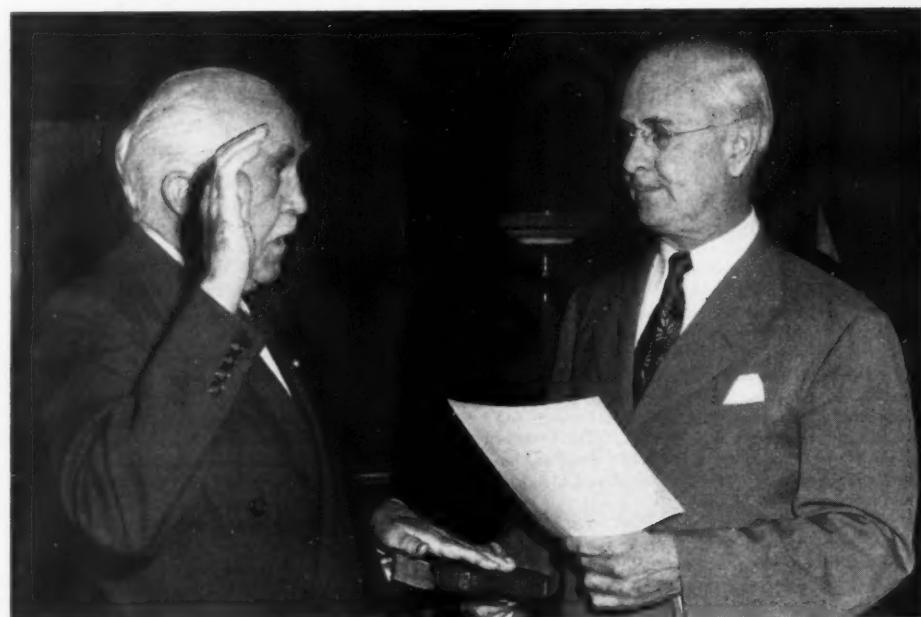
In selecting the date of July 1, 1952, Mr. Rentzel said, 2 years were allowed for pilot and aviation public education. In a statement to members of the Aviation Development Advisory Committee, he outlined some of the reasons behind the ACC decision.

"We have been vitally interested in obtaining the most modern navigation aids for the United States flying public," Mr. Rentzel told the Aviation Development Advisory Committee. "To this end, the CAA has cooperated with the Air Navigation Development Board in the execution of the recommendations of the RTCA Report SC-31, which recommended the establishment of a 'common (military-civil) air navigation system.' Among the aids selected for early use as part of this system is the distance measuring equipment (DME) which requires standardization of one unit for distance. Also, other elements of the common air traffic control procedure would be greatly handicapped if aircraft reporting in two units are automatically fed into the system and have to be plotted and directed over the airways from distant control centers.

"As a result of service experience during the war, the U. S. Air Force and Navy standardized in 1946 on the nautical mile. Complete uniformity of units used is considered to be in the interest of national defense. The members of the ACC Committee were of the opinion that the civil aviation public is sufficiently advanced in its training to make the change without undue difficulty and would in the long run benefit by being familiar with the military standard. Also, by no means a minor consideration, the funds for the new navigation aids, which will assist domestic as well as international traffic, have been appropriated on the basis of a common use with the military and the desirability for an adequate air navigation system for use in times of national emergency."

The nautical mile has long been considered superior to the statute mile from the navigation point of view, especially over water, Mr. Rentzel said. "In international operations," he added, "the nautical mile is the ICAO standard previously recommended and accepted by the United States. This made it difficult indeed for the ACC to maintain the statute mile as a standard for domestic operation with aviation advancing as it is."

General Fleming Sworn in as Under Secretary



Secretary of Commerce Charles Sawyer (right) is shown administering the oath of office July 24 to Maj. Gen. Philip B. Fleming as the first Under Secretary of Commerce for Transportation. In his new post, General Fleming serves as the principal deputy to the Secretary on all matters concerning transportation within the Department and exercises general supervision over all such activities.

General Fleming for the last year has been Chairman of the United States Maritime Commission. He was designated a member of the Permanent International Commission of the Permanent Association of Navigation Congresses, with headquarters in Brussels, by Secretary of State Marshall, and is chairman of the American section.

Israel National Airlines Gets Permit for 1 Year

The Civil Aeronautics Board has issued a temporary foreign air carrier permit for a period of 1 year to El-Al Israel National Airlines authorizing foreign air transportation of persons, property, and mail between the terminal point or points in Israel, intermediate points in Greece, Italy, Switzerland, France, the United Kingdom, Ireland, Iceland, Greenland, the Azores, and the provinces of Newfoundland, and Quebec, Canada, and the terminal point New York, N. Y. The Board's order was approved by President Truman on June 22, 1950.

At the present time no air transport agreement exists between the United States and Israel although it is understood that negotiations have now been concluded and signature is expected shortly. However, even in the absence of such an agreement an American air carrier, Trans-World Airlines, is now operating scheduled service between the United States and Israel. The Board said that "the need for reciprocity between our country and another in which our carriers are permitted to operate is one of the factors bearing upon public interest which we must and do consider; and this is true whether or not there is in existence an air transport agreement for the service in question."

The Board pointed out that the permit issued to Israel National will be subject to all applicable provisions of any treaty, convention, or agreement affecting international air transportation to which Israel and the United States shall be parties, now in effect or that may hereafter become effective.

COLLEGE LIBRARY
DUKE UNIVERSITY

CAA Lists Aviation Firms Doing Variety of "Odd Jobs"

Need a weed chopper who works at 100 miles an hour? A spray gun to kill flies all over town? Got any coyotes you want shot?

Lists of firms engaged in aerial photography, spraying, dusting, seeding, pipeline patrolling, banner towing, and shooting of predatory animals now are available from the Civil Aeronautics Administration in Washington. These lists, compiled by the Office of Aviation Safety, name some 2,000 firms who do "industrial flying."

The CAA includes in this classification firms that spray whole towns and communities with DDT to destroy disease-bearing or pestiferous insects; big firms with many "teams" constantly in the field during the season treating millions of acres of grainland for weeds; and firms performing a dozen other jobs invented or developed by ingenious Americans using airplanes. The lists are available from the Office of Aviation Information, CAA, Washington 25, D. C.

Another list includes more than 100 firms operating large aircraft (more than 12,500 pounds) in general charter work. Still another contains the names of more than 2,500 firms engaged in general aerial charter and transportation services.

The lists are: Certificated Irregular Carriers, Air Carriers Operating Large Aircraft, Commercial Airplane Dusting and Spraying Operators, Commercial Pipe Line and Power Line Patrol Operators, Commercial Aerial Photographers, Commercial Airplane Banner Towing Operators, Commercial Airplane Operators Engaged in Hunting Predator Animals.

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